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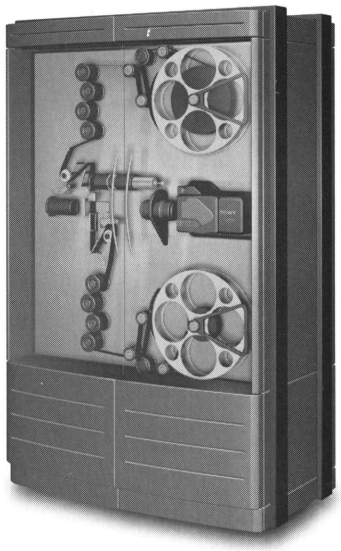

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American Cinematographer
The International Journal of Film & Digital Production Techniques

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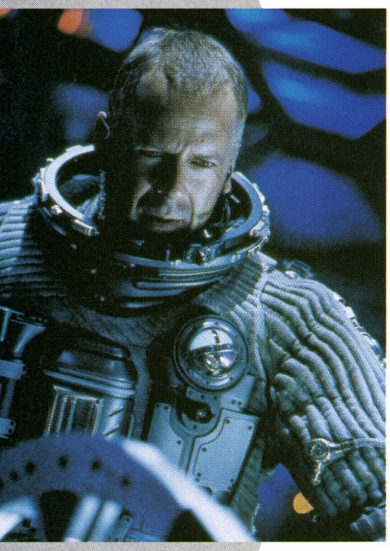

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86

94

On Our Cover:
An expert oil driller (Bruce Willis) turns astronaut in an attempt to alter the course of an Earth-threatening asteroid in *Armageddon*, directed by Michael Bay and photographed by John Schwartzman, ASC (photo by Frank Masi, courtesy of Touchstone Pictures and Jerry Bruckheimer Productions).

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Bob Fisher
Naomi Pfefferman
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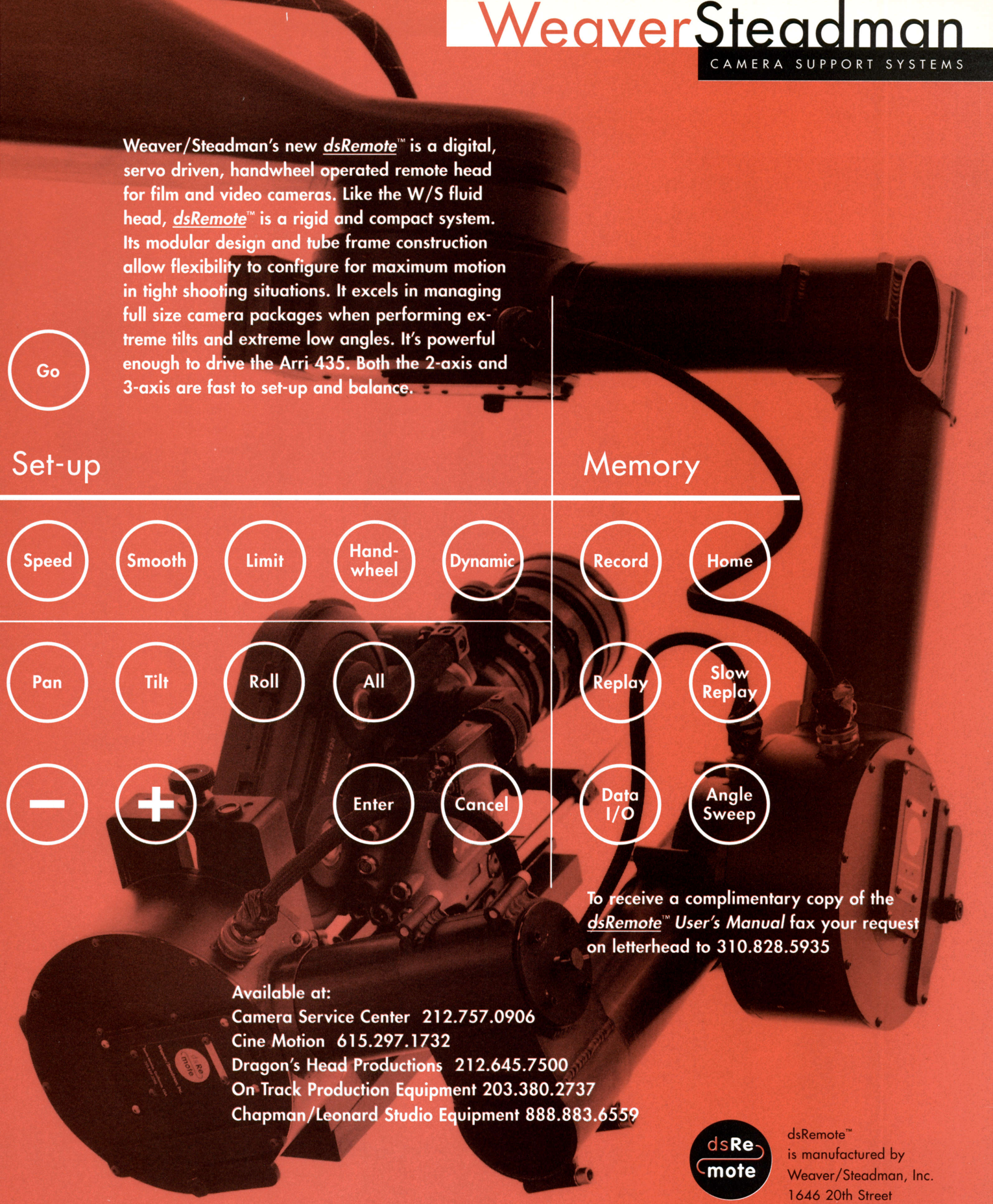

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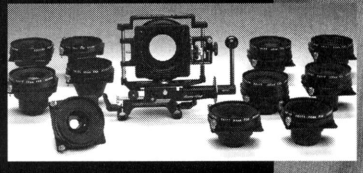

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Special effects are an increasingly important part of many theatrical releases, television programs and commercials. Audiences have even come to expect them.

Accordingly, growing numbers of post production houses are being called upon to transform ideas into "reality" through costly digital technology. Spending from $10,000 to $50,000 for a single scene is not uncommon.

Needless to say, many DPs, Directors and Producers have openly wished there were more things that could be done through the lens —and not in post.

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There are a variety of interesting effects possible with the Squishy Lens™. One is to provide a volumetric "tunnel vision" effect. When using a wide angle lens opened up to T2.0, you can have a positionable, variable clear center area, with perimeter areas of saturated colors "smearing" with other colors —as well as the ability to have an adjustable "center" of sharp focus. The sharply defined edges in the central area will produce double image halos as they extend into the smearing zone, and as you stop down the lens the smearing is diminished and you can see objects being stretched and pulled like "optical taffy." Using longer lenses will diminish the effects, and ultimately produce more of a diffusion, with images taking on a prismatic haze.

However, the old saying that "a picture is worth a thousand words" certainly holds true in this case, so we'll gladly send you a videotape demonstrating some of the many effects possible.

The more time you spend using Clairmont's Squishy Lens™, the more ways you'll find to achieve interesting special effects through the camera. It'll certainly challenge your creativity!

NOTE: *The adjacent frame captures do not do the Squishy Lens true justice. It's important to see how motion and lighting changes affect the final image. You MUST see the sample video to appreciate the range of effects. Call for your demo VHS.*

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It's also important to note that when comparing the effects possible with a Squishy Lens™ to what can be achieved on a CGI digital setup, depth and perspective are critical. Because film is essentially a two-dimensional carrier of information, creating complex aspect-related effects digitally can be quite time consuming and costly. Especially when you factor in the common problem of varying interpretations. With the Squishy Lens™ you can see it before you shoot it! Obviously, the ability to do unique effects in camera during actual filming can save huge amounts of time and money.

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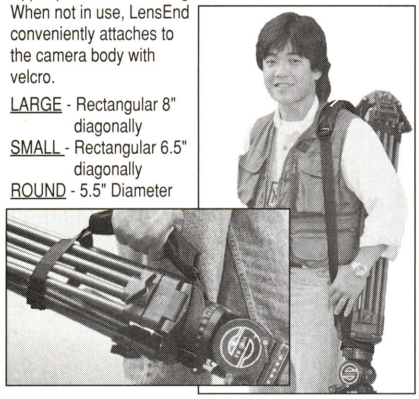

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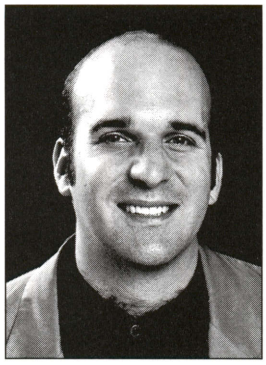

In Hollywood, summertime means box office. *Big* box office. With younger moviegoers on vacation from school, the chances for repeat viewership rise exponentially, and the studios are always ready with their latest state-of-the-art blockbusters.

This month's issue of *AC* reports on two of the season's hottest tickets: *Armageddon* (see coverage beginning on page 40) and *The X-Files: Fight the Future* (page 64). The former offers a tried-and-true combination that seemingly can't miss: Big Stars, Big Effects, and a Big Concept (not to mention the obligatory Big Promotional Push). *Armageddon* is a "popcorn picture" par excellence, featuring wise-cracking heroes who are literally thrown in the path of a seemingly unstoppable force of nature. A full serving of cinematic *Sturm und Drang,* in glorious stereo sound, is guaranteed.

A riskier but still tantalizing bet is the first *X-Files* movie, which will attempt to take the paranoid, wildly popular sci-fi series out of the nation's living rooms and into its multiplexes. Retooling a TV series for the motion-picture realm can pay big dividends (as the *Star Trek* franchise has ably demonstrated over the years), but the strategy is hardly foolproof. Of course, given the thespian theory that small gestures play better on the big screen, the minimalist charisma of FBI agents Mulder and Scully may well prove to be a revelation in a feature-size frame.

If you feel that aliens and asteroids don't warrant a long wait in line, you may want to check out some of the summer's intriguing independent fare, which includes *High Art, Best Man, Passion in the Desert* and *Buffalo 66* (see Production Slate, beginning on page 20). The truly intrepid viewer should also seek out *Scotch and Milk* and *Broken Vessels,* two of the standout selections at this year's Los Angeles Independent Film Festival (page 92). An added incentive: you may not have to sit in the first row if you're a few minutes late.

For those who prefer to stay home and stretch out on the sofa, *Brooklyn South* (page 84) offers a compelling combination of action, drama and adventurous cinematography. Another option, of course, is to rent a classic film like *In a Lonely Place* (page 100), which features both artful photography and a powerhouse performance by Humphrey Bogart.

True students of motion picture history would do well to honor the memory of the late Linwood Dunn, ASC, one of the greatest innovators in the history of visual effects, and a gentleman in every sense of the word (see In Memoriam, page 126). His recent passing, at the age of 94, marks the loss of a true titan of technical ingenuity. During the course of a long and legendary career, Dunn co-invented one of cinema's seminal tools (the Acme-Dunn Optical Printer) and lent his unique brand of legerdemain to a series of unforgettable achievements, including *King Kong, Citizen Kane, Cat People, Mighty Joe Young, The Thing, West Side Story, It's a Mad, Mad, Mad, Mad World* and Gene Roddenberry's original *Star Trek* television series. Cue them up to witness a glorious cavalcade of inventiveness and imagination.

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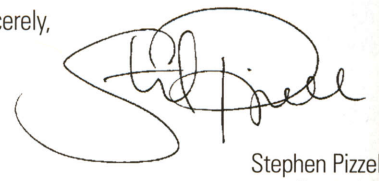

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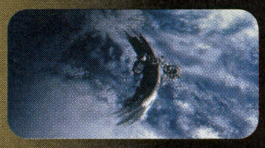

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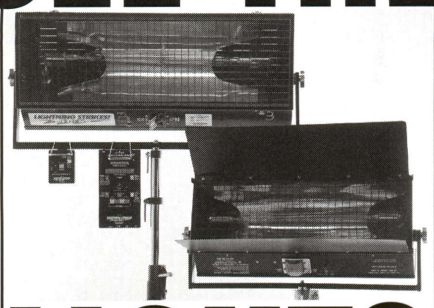

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Letters

Mything the Point

Interviews in recent issues extolling Super 35 have perpetuated some myths about anamorphic lenses. While Super 35 may have cured some filmmakers' fear and loathing of widescreen, spreading misinformation about the system — which, by obvious comparison, still yields a superior image — is really unfair.

Director James Cameron is entitled to his own opinion of the aberrations that anamorphic lenses introduce ["Captain of His Ship," *AC* Dec. '97], but he is wrong to imply that the shortest focal length available in anamorphic is 50mm; the shortest focal length from the three major vendors — Panavision, Joe Dunton, and Technovision — is a 24mm, which is used quite frequently in Jackie Chan's films. In the *AC* article on the making of *Memoirs of an Invisible Man* [*AC* Dec. '91], William Fraker, ASC is quoted as stating that John Carpenter prefers to use 28-35mm anamorphic lenses for everything *but* close-ups. These lenses have the same depth of field as their comparable nonanamorphic focal lengths, while also providing the viewer with the sense of immediate involvement in the scene — an initial selling point of widescreen. Carpenter's cinematographers have used them effectively in all of his films, as have John Toll, ASC on *The Rainmaker* and most notably Peter Deming on *Scream 2* for the kind of Steadicam/handheld shots that supposedly can't be done with heavy anamorphic lenses. In several of Billy Wilder's films from the Sixties, Joseph LaShelle, ASC used 40mm Panavision lenses to achieve the kind of Wellesian deep-focus shots that were supposedly impossible with anamorphic.

Regarding *Fear and Loathing in Las Vegas* ["Gonzo Filmmaking," May '98], I was surprised at Nicola Pecorini's comments about problems with backlight and anamorphic lenses, having just screened a print of *Hud* in which James Wong Howe, ASC used very strong backlight for interiors as well as exteriors to emphasize the starkness of the drama. Similarly, Joe MacDonald used strong backlight to emphasize the hot desert setting of *The Reward*, shot in color with CinemaScope lenses.

Pecorini's comments about having to use a T5.6 for an anamorphic lens should actually be a subject of wider debate among cinematographers given today's obsession with softer images created by the use of wider apertures. It should be noted that one reason for the snap and sharpness of films from the Forties and Fifties was cinematographers continuing to work at apertures between f4 and f8 despite the introduction of faster negatives. Recently, I saw a print of *The V.I.P.S.* (1963), photographed with Panavision anamorphic lenses by Jack Hildyard, ASC, and was surprised at how *sharp* it was. Admittedly, this was a fading original release print and, therefore, off the original negative, but I've seen the same level of image quality in restored prints made from internegatives, as well as 16mm prints which are also off an internegative. Shallow focus is in many ways the antithesis of the idea behind widescreen, especially when the film is shown on a *big* wide screen.

Finally, George Petersen's letter praising the 70mm prints of *Titanic* ["An Extra 35mm of *Titanic*, May '98] ignores a significant point — how much better the film would have looked had it actually been shot on *65mm* negative.

— Rick Mitchell
Los Angeles, California

AC in the Heart of Darkness

While living in Leopoldville, Belgian Congo [a former African colony now known as Zaire] I had a 14-year long subscription to *American Cinematographer* (from 1947 to 1960) until independence saw me return to Belgium. While there, I created and

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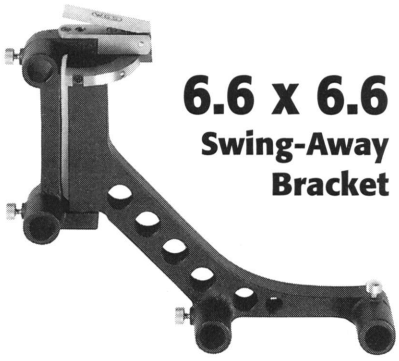

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Step Into The Past

Proving that your copy of *American Cinematographer* will always reach you no matter where you are in the world — in the Arctic wastes or deep in the Belgian Congo — here is a letter received recently from cinematographer Henry Goldstein, attached to the Information Service, Belgian Congo. He wrote:

"I'm on location taking shots in the jungle, some 20,000 feet of film and 800 stills — quite a job here in the hot weather. Yesterday I received the September issue of *American Cinematographer*. A native traveled all day to bring it to me. It is the most interesting of all magazines in the motion picture industry."

— *American Cinematographer*, 1949

became the head of the Motion Pictures and Photographic Department of the Belgian government, [a position I also held in] Rwanda and Burundi.

When I first arrived, there was nothing [in terms of a motion picture production infrastructure], but I had five years of experience (from 1934 to 1939) as a photojournalist and motion picture cameraman for Paramount News and Fox Movietone News in Belgium, Holland, Luxembourg, France and Germany. I had begun at the age of 14 — there were no schools for cinematography or still photography, so I received all of my experience while working on location. At that time, I had a very heavy 35mm French Debrie camera — with one lens and only 30 meters of loading [capacity] — which I was turning by hand on a quite heavy Debrie tripod; I was always obliged to carry a stock of reserve film. Then came World War II, and I was called into the army. I later became a prisoner of war, only to be sent to German prison camps for five years.

When I landed in the Belgian Congo, there was no motion picture equipment, so I had to order the following from Hollywood: a Mitchell 35mm camera and dolly for studio use; Moviola 35mm editing equipment; Mole-Richardson lighting equipment; Bell & Howell 35mm and 16mm handheld cameras with lens turrets; a Maurer 16mm sound camera; an Auricon sound camera; a Bell & Howell 16mm projector with sound; Weston light meters; and a Harrison color-temperature meter.

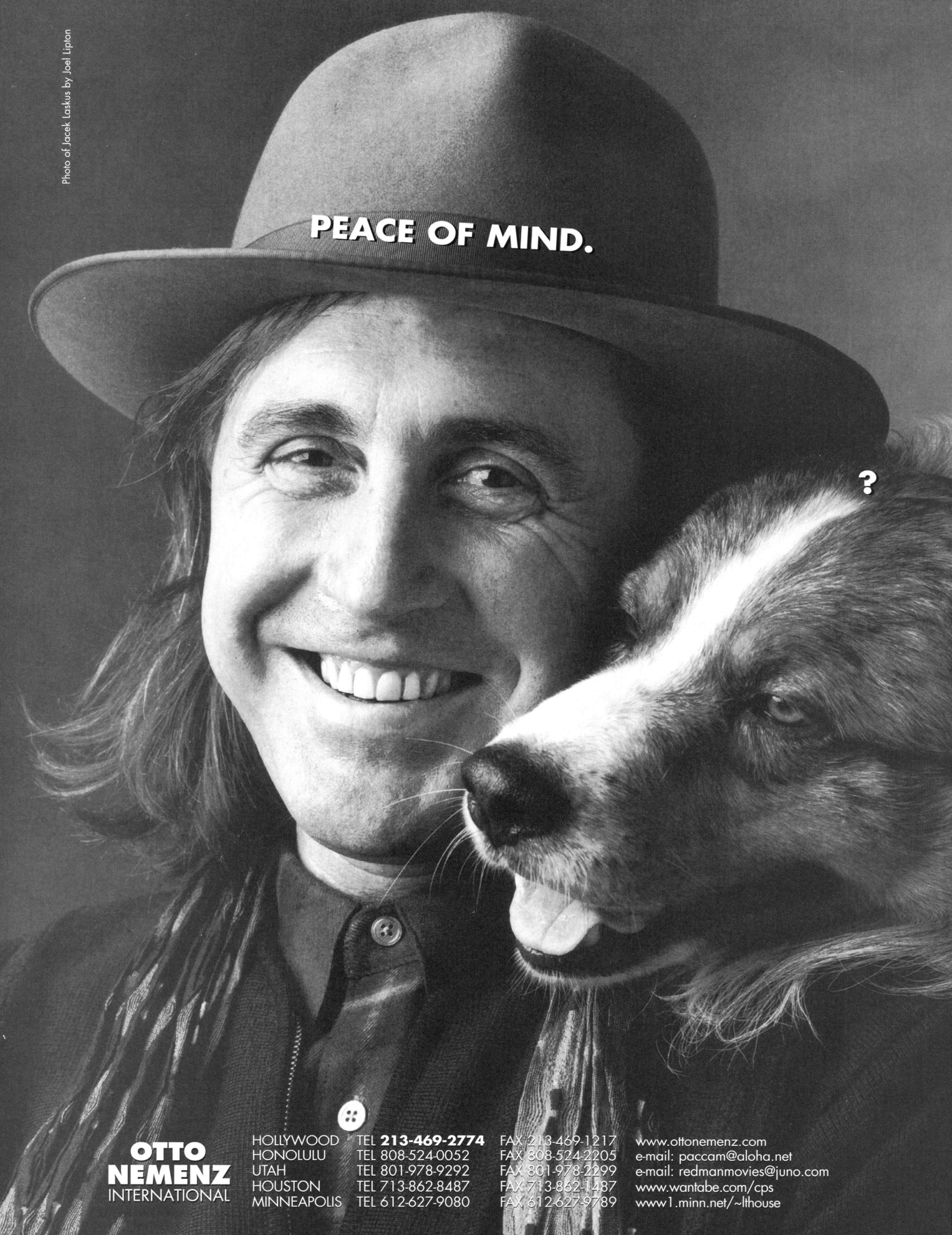
Being well aware of the area's varied and beautiful scenery, I was placed in charge of helping American directors, such as John Huston, work on location. They sent me their scripts, and I had to read them and find the best locations. I also had to organize the arrival of the crew, the stars and the equipment from the U.S. and locate lodging in the bush or rain forest — those were my instructions from the government. I served in this capacity on *King Solomon's Mines* (1950), *The African Queen* (1951), *White Witch Doctor* (1953), and *The Nun's Story* (1959). I had a hell of a time doing it and learned a lot about making movies on location.

Along with some photographs of me at work back then, I have sent a copy of the article which appeared in a 1949 issue of *American Cinematographer* [see box]. I was on location shooting a story about the life of the giant mountain gorillas — the first cameraman to do so at the time. Last year, I edited two books about my life as a prisoner of war, and I am now writing stories about my experiences on the "dark continent." I wish all the best to those of you at *American Cinematographer*.

— Henry Goldstein
Brussels, Belgium

Errata

In photo caption #24 within our May pullout section on the ASC Awards, we mistakenly identified Panavision marketing representative Zoe Iltsopoulos as *Titanic* executive producer Rae Sanchini. *AC* regrets the error, although we're certain that Zoe would enjoy having some of the film's profit points. ■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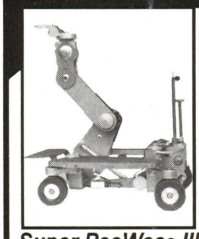
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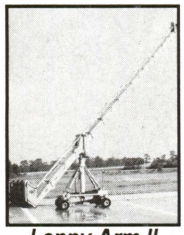
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The Post Process

Pairing Up for Previsualization

by Debra Kaufman

Given the increasing number of motion-picture shots involving digital elements, the demand for previsualization is on the upswing (see "Visions of the Future," *AC* April 1998). While Eastman Kodak demonstrated its new previsualization system (to be covered in an upcoming issue of *AC)* at NAB '98, the English firm 5D previewed theirs as well.

Based in Surrey (with R&D offices in London), 5D is a software developer for SGI and NT platforms. Since the debut of its first product — TMorph — 5D has created a suite of 240 image-processing plug-ins (called Monsters) for Avid Media Illusion, CIC Jaleo, Discreet Logic's Flame, Eyeon Digital Fusion, Quantel (as a member of that company's Java Developer's Program) and Softimage D/S.

Another U.K. company, Mark Roberts Motion Control (MRMC), manufactures the Milo and Cyclops mo-co systems, which have been used to produce visual effects for such feature films as *The Borrowers*, *Dante's Peak*, *Lost in Space* and *Mortal Kombat*.

According to Marc Dando, 5D's sales and marketing director, the two companies have been aware of each other for several years: 5D had performed tasks on 3-D data analysis, while MRMC had been working toward mo-co/CGI integration, designing features such as target-tracking and XYZ control into the Flair software to maximize the performance of their mo-co rig.

The two companies believed that their complementary skillsets — 5D's 3-D curve-generation and manipulation in the digital realm, and MRMC's motion-control curve-generation and applications — would form the basis of a fruitful working relationship. And that's exactly what has transpired. Mark Roberts has made all of the inverse kinematic data for their different mo-co rigs available to 5D. In turn, 5D is developing software with a built-in "limits-checker" which will alert the CG operator when he or she is designing a camera move that the mo-co rig cannot emulate.

For example, although some prominent CG software packages like Alias/Wavefront and Softimage already permit importation of motion-control camera data, neither possess a filter to determine whether the motion-control rig can actually *mimic* the virtual camera's movements. "For example, the virtual camera can travel at 60 miles per hour and turn right at 90 degrees," explains Dando. "But a motion-control system has mass, and therefore inertia, and may not be able to achieve such a movement."

As envisioned by 5D and MRMC, their still-unnamed previsualization software can be used to streamline both planning and production. Currently, the typical modus operandi for previsualization is that a 3-D animator designs a wireframe model and performs a camera move on it. But upon movement importation, if the motion-control rig cannot complete the task, the movement then undergoes adjustment. Once refined, the coordinates are imported back into the 3-D animation software to preview changes in the wireframe model's curvature; the curvature itself may need alignment to get the best angle on the wireframe, which is then sent back to the rig for execution. And so the process proceeds — ad infinitum.

The 5D/MRMC software will alleviate this discrepancy between the virtual and real worlds. "Essentially, the visual effects team working at the previsualization stages in 3-D will be able to

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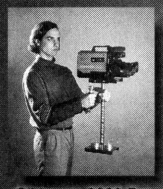

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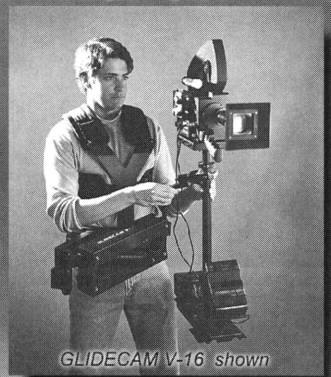

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emulate the movements of the mo-co rig they want to work on, and will know that the match moves they have designed will work on the shoot," notes Dando.

Given the bent of the creative process, the give-and-take between the worlds of CG and motion-control will not come to an end. But, for the director who wants to make move changes, the process will hopefully take less time and be more straightforward.

The 5D/MRMC application itself is designed to be user-friendly. The 3-D animator calls up a window showing a virtual motion-control rig. He or she can then dry-run the movement through the motion-control emulator; if there are any difficulties with the movement, the software will highlight problem areas pictorially.

The advantage of being able to guarantee rig replication of a 3-D curve goes beyond mere previsualization. Once the 3-D wireframe has been previsualized with the camera move, says 5D's Dando, the data is reliable enough to be used for shooting. If the cinematographer or director wants to view the integration of elements during the shoot, the MRMC system can mix the rig's video feed with a video (or computer) feed of the 3-D CG elements, to display a rough composited image. "5D's 3-D previsualization and CGI interfacing package will enable visual effects designers to plan and refine special effects shots prior to the main shoot via a 'virtual' motion-control rig," explains Dando. "The collaboration with Mark Roberts Motion Control is designed to provide postproduction companies with off-the-shelf software that integrates motion-control with all of the major 3-D and special effects systems. Although during the initial phase, we will concentrate on interfacing with Softimage 3-D and Discreet Logic's Flame."

While their program was demonstrated at at NAB '98, 5D and MRMC hope to fully unveil their new tool at Siggraph '98. SVC, a high-end postproduction facility in London, and the L.A.-based Camera Control are expected to be the first Beta sites. ■

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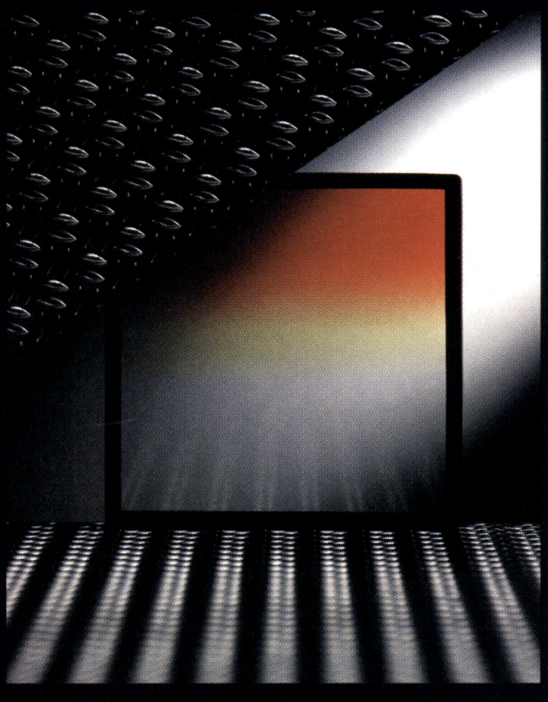

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Production Slate

compiled by Andrew O. Thompson

Lending Luster to *High Art*
by Eric Rudolph

Ambition, drugs, sex and money fuel the drama of Lisa Cholodenko's first feature, *High Art*, a low-budget 35mm production which earned its writer/director the Waldo Salt Screenwriting award at this year's Sundance Film Festival.

Heading up the film's colorful cast of characters is Syd (played by Australian actress Rhada Mitchell), the ambitious assistant editor of a New York art photography magazine called *Frame*. Quite incidentally, she gets caught up in the seemingly glamorous world of Lucy Berliner (Ally Sheedy), a prematurely retired photographic artist who resides in the loft right above her own. Aside from reveling in Berliner's respected body of work, Syd finds her rip-roaring, trust-funded fondness for hard drugs to be irresistible. But their close coupling — on both a professional and personal level — ends in tragedy.

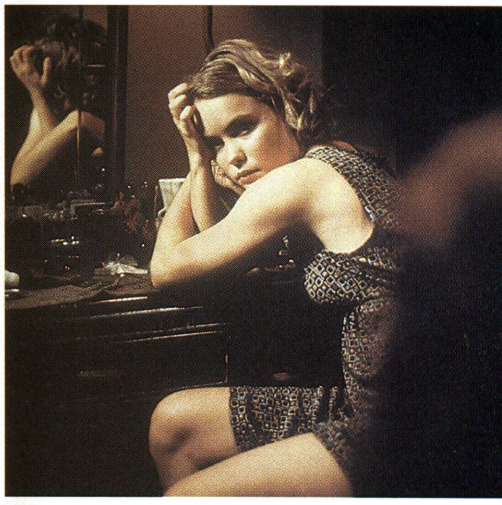
Right: During a pause from partying, the ambitious yet alienated Syd (Rhada Mitchell) ponders the drug-filled world she's been lured into. Below: Retired art photographer Lucy Berliner (Ally Sheedy) enjoys a tranquil moment with her lover, Greta (Patricia Clarkson), a skittish German actress who relishes memories of her halcyon days with director Rainer Werner Fassbinder.

To create the enticing, languid visuals of *High Art*, Cholodenko enlisted cinematographer Tami Reiker (*Incredibly True Adventures of Two Girls in Love, Far Harbor, Alchemy*, and the upcoming *Girl*), who had previously shot her short film *Souvenir*.

High Art was inspired to a great degree by a recent trend in still photography known loosely as The Boston School, exemplified by the work of Jack Pierson and Nan Goldin. These photographers often set their sights on friends and lovers, who in some cases exist at the margins of society and dabble in illicit drugs. This photographic approach came into vogue in the early to mid-Eighties, and eventually attained the status of "high art" before being co-opted by the fashion industry for advertising purposes. "A lot of people assume that this film is inspired directly by Nan Goldin, who is certainly the best-known woman in this school of photographers, but that is not the case," notes Cholodenko. "Nan read the script and gave us her blessing, but we were really more influenced by Jack Pierson. We looked to his work for the lighting and the mood, and to such films as *A Woman Under the Influence* for the framing — for shots I called 'dirty' close-ups, with someone else partially in the frame."

Adds Reiker, "Pierson's lighting is very natural, and he uses a lot of blue and orange washes. We tried to make our lighting as natural as possible and to give the film something of the pastel feel." (Appropriately enough, Pierson and Goldin were among the slew of photographers who contributed their photos as cover art for the fictitious *Frame* magazine; the "Lucy Berliner" stills were actually shot by New York-based photographic artist JoJo Whilden.)

In preproduction, Reiker worked closely with Cholodenko, production designer Bernhard Blythe and costume designer Victoria Farrell to map out the film's look. "We started with the color palettes for the two lead characters, Syd and Lucy," the cinematographer



comments. "Syd's clothes are cool and a bit pastel, mostly green and blue, as is her office environment and home. Lucy's clothes and loft have stronger colors which are much darker. We had to be very careful to make sure we didn't go too far with this color palette approach, so that it wouldn't be too obvious."

The contrast between Syd and Mitchell is also aided by the casting, since the two actresses playing the roles are strikingly different physical types: Radha Mitchell is blonde, young and slightly round in face and figure, while Sheedy is dark-haired, older and very slender.

In conceiving *High Art's* imagery, Reiker and Cholodenko decided to create the psychological impression that the audience had a deep insight into the various characters' troubled lives. To convey that concept, they used an Arriflex Varicon to open up shadow areas. Details Reiker, "We wanted to be able to see into all of the shadows — on the walls, on the character's faces. We tested various flashing processes and found that the Varicon gave us just the effect we wanted: a pastel kind of wash which opened shadows." She adds,

Photos courtesy of October Films.

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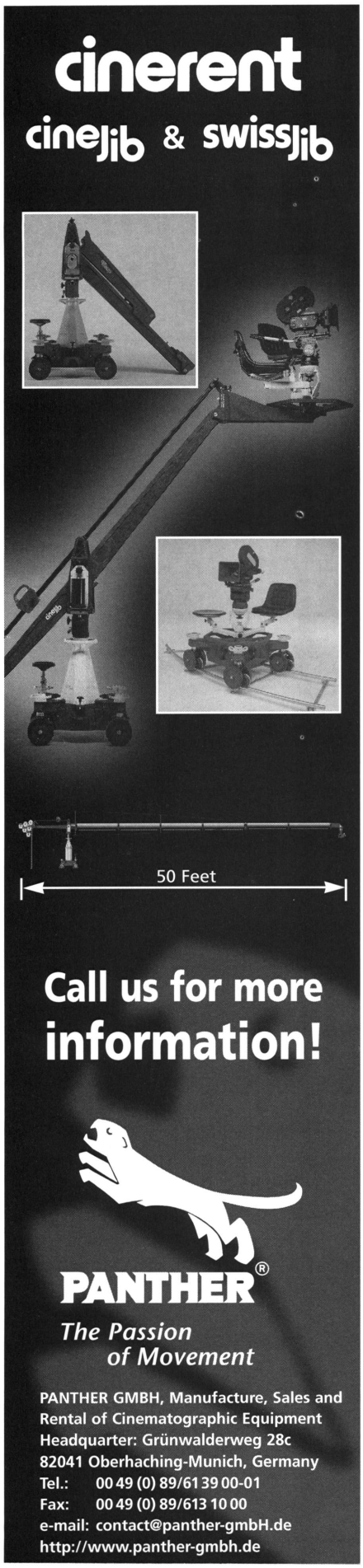

"This approach was, of course, the reverse of most other films I've ever shot. Feature cinematography is normally about making things look richer and darker, and making the blacks look like ink."

Placement of the Varicon's contrast-adjusting light source in front of the lens allowed Reiker to monitor the changes through the viewfinder, which she found quite helpful. "Even though we had tested and determined what degree of flashing should be used for each character and setting, it was still great to be able to adjust the Varicon's dial, which controls the range of 'flashing' from 1 to 11," the cinematographer relates. "I could see the effect it was creating, which did not show up on the video assist very accurately. By simply looking through camera to see the device blowing out the blacks, I knew right away when I'd pushed it too far and everything had turned milky."

The Varicon also limited the need for fill light and boosted the film speed by an entire stop, which enabled the filmmakers to live within their lighting budget. Interiors and night scenes were photographed with Eastman Kodak's Vision 320T 5277, while 100 ASA EXR 5248 was used for day exteriors. Reiker details, "We used the Varicon for the entire film. For interiors the degree of flashing was kept in the range of 2 to 4. For exteriors you can go further — we were usually at around 5 or 6. Mark Ginsburg at Technicolor did a great job on the timing."

Adding to the film's seductive ambience is its fluid, floating camera movement, which was facilitated by Reiker's use of a Moviecam Compact. "About 25 percent of *High Art* was shot handheld and a full 50 percent was done with a jib arm. I'd never used either approach to that degree, but the jib arm was right for helping us create a floating feeling, which is most evident when Syd first enters Lucy's loft. That smooth, floating approach seemed appropriate for the languorous mood." In that early scene, Lucy and some of her cohorts are sprawled on a couch in various stages of a drug-induced stupor. The camera floats smoothly from person to person as each leans down to the coffee table to abuse their substance of choice.

The $500,000 budget of *High Art* placed a limit on lighting equipment, but Reiker did manage to place three Maxi-Brutes and assorted 12K and 4K Pars on scaffolds outside the windows of the loft location that served as the set for both Syd and Lucy's apartments. She relates, "We put 1/2 plus-green gels on the Maxis. We didn't want the typical blue-tinted night look, so we opted for the green to approximate the look of New York City streetlights."

All of the film's interiors were primarily lit with multiple banks of Kino Flos often fitted with tubings of differing color temperatures. A scant haze was often provided by Chinese lanterns. Reiker discloses, "We mixed cool whites in with both the tungsten and daylight tubes, so we would get a bit of a green wash to suggest fluorescent lighting and the play of the streetlights coming in from the windows."

Tie-ins powered the fixtures whenever the budget or other factors precluded the use of a generator. But according to Reiker, the dark tone of *High Art* did not result from technical limitations. "These characters' lives are very dark, as is the film's ending," she says. "The flashing and low light levels helped us to maintain the tone and the sense of realism we were after."

Revisiting *The Best Man*
by Naomi Pfefferman

In the late 1970s, filmmaker Ira Wohl began to worry about his mentally-challenged cousin, Philly. The then-50-year-old man had always lived at home with his parents, Max and Pearl, scarcely venturing beyond their small Queens, New York apartment throughout his lifetime. But Philly's parents were elderly, so Wohl wondered how he would survive once his parents passed away.

The director/editor/producer set out to chronicle Philly's coming-of-age story in the remarkable film *Best Boy*, in which the family's history is told in a

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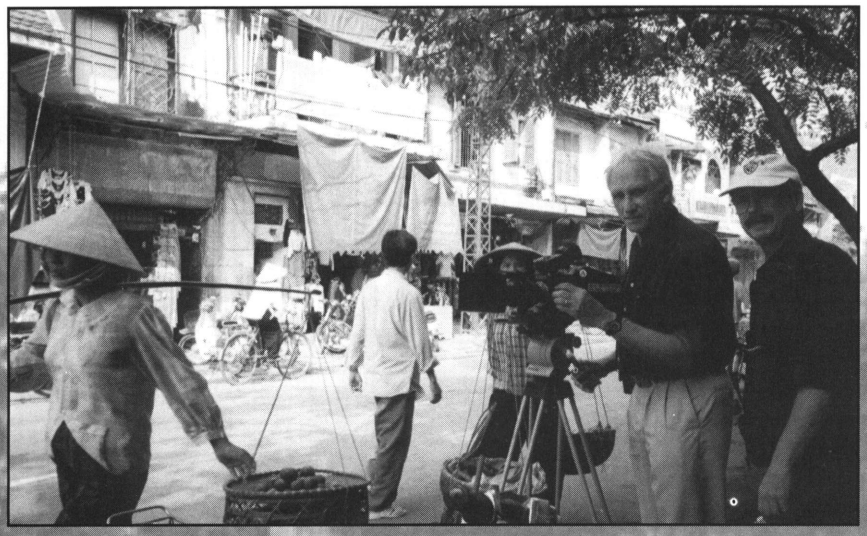
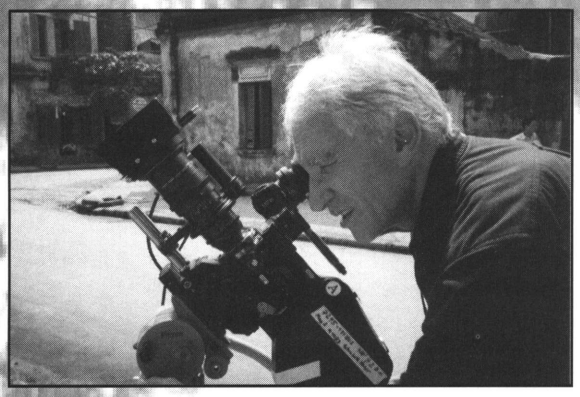


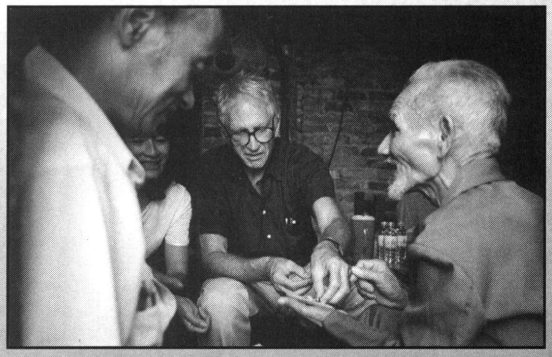
Terry Sanders with camera assistant **Bruce Nolte** in Hanoi, Vietnam.

Two time **Academy Award** winner, **Terry Sanders**, once for **Best Feature Documentary**, once for **Best Live Action Short**, chose **Birns & Sawyer** for his latest project, ***Return with Honor***. This feature length documentary tells the story of U.S Airmen who were held prisoner in North Vietnam, some for as long as eight years. We see the resiliency of the human spirit, as their experiences are retold entirely in their own words.



"We needed to do extensive interviews of ex-POWs, their wives, Vietnamese soldiers and civilians," says Sanders, "so I wanted to use Super-16 and timecode equipment. I knew the place to go would be **Birns & Sawyer** for their **Aaton XTR-Prod cameras**. I have been a long time customer of theirs, and have come to trust their equipment, service, and advice. Their cameras performed flawlessly, and the timecode system allowed for added spontaneity in the interviews."

Producer/Directors Terry Sanders and **Freida Lee Mock** with **Mai Van On**. In 1967, Navy pilot **John McCain** (now a U.S. Senator) was rescued from drowning when his A4E fighter plane crashed and he parachuted into **Truc Bach Lake** in the center of Hanoi.



Birns & Sawyer wishes to congratulate
Terry Sanders and Freida Lee Mock
for their exceptional filmmaking.

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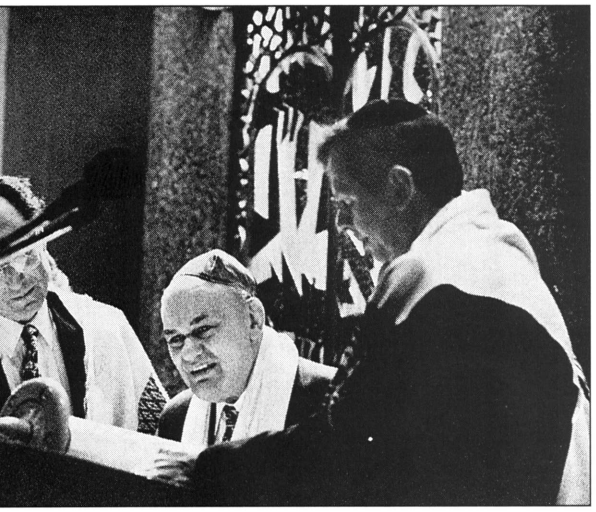
series of poignant vignettes captured by cinematographer Tom McDonough's verité camerawork: an ebullient Philly bounds joyously to the corner store for ice cream all by himself; the quiet, ailing Max gazes at Philly all dressed up for the first day of his special school and murmurs, "You're the cat's whiskers." The feature won acclaim from many a festivals and later earned the 1979 Academy Award for Best Documentary.



Above: In the documentary *Best Man*, Philly, a mentally challenged 70-year-old, experiences the Jewish rite-of-passage ceremony *bar mitzvah*. Right: Director Ira Wohl (inset) who earned an Academy Award in 1979 for *Best Boy*, his first film about Philly; cinematographer Tom McDonough captures some verité-style camerawork of Philly in an educational environment.

After receiving the Oscar, Wohl became a hot commodity in Hollywood, but grew frustrated with less-than-serious-entertainment job offers. Around 1990, when these bids stopped coming, he went back to school to become a social worker. Perhaps as a means of catharsis, Wohl chose to specialize in issues pertaining to the entertainment industry.

Yet people always asked him what had happened to Philly, and in June of 1996, Wohl faxed off several impulsive letters to various television companies — including HBO — regarding a possible follow-up film. Within six weeks, he had a $250,000 budget for *Best Man: 'Best Boy' and All of Us 20 Years Later*, which depicts Philly at age 70. The following month, he began production with his original collaborators: McDonough, sound recordist Peter Miller, and an unprecedented luxury — a camera assistant.

In *Best Man*, Philly is happily ensconced at his group home, long after his parents have died. When Wohl reasons that his cousin has become a man — albeit a special kind of man — he arranges for Philly to experience the Jewish rite-of-passage of *bar mitzvah*.

Wohl began *his* rite-of-passage in the film business during the Sixties, working on what he refers to as "a semi-slavery basis" for Orson Welles. He was told he could have the job if he smuggled Cuban cigars into Spain for the director. After accomplishing this mission, he edited *Don Quixote* day and night in the basement of Welles' lavish villa.

Five months into the undertaking, however, Welles ran out of money, and Wohl moved back to New York to work on television commercials. In 1976, he was directing and editing documentary segments for the acclaimed children's TV series *Big Blue Marble* when he began looking for a cameraman to film his cousin.

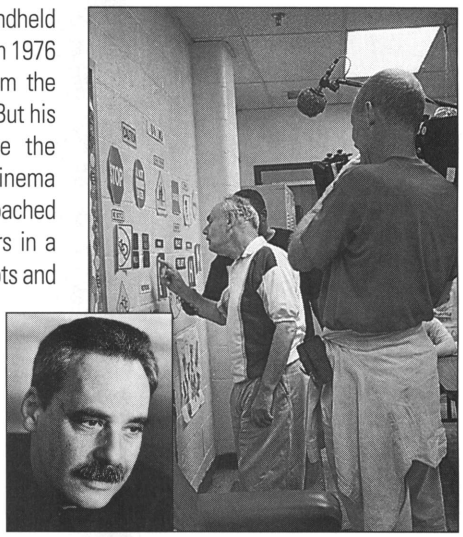
McDonough's show reel caught his eye with a clip of a blind Vietnam veteran walking down the street. "It was a subjective, ankle-level shot, which for a few seconds gave me a visceral sense of what it might be like to be blind," Wohl recalls.

McDonough, a writer and cinematographer, first picked up the camera during the cinema verité craze of the Sixties. In *Light Years*, his 1987 collection of essays and short stories, McDonough notes that back then, "handheld cameras were as much in vogue as acoustic guitars, and stood for the same things — spontaneity [and] blue-eyed soul." The cinematographer employed a handheld camera for both *Best Boy* (shot from 1976 to 1979) and *Best Man* (shot from the summer of 1996 to May of 1997). But his point of view was quite unlike the dispassionate stare of some cinema verité projects. McDonough approached his subjects as if they were actors in a family drama. "By my choice of shots and angles, I tried to make the documentaries feel like feature films," says the cinematographer, who has worked on such documentaries as *The Day After Trinity* and *Eyes on the Prize*. "In many verité movies, you get the sense of a newsreel camera hosing around. But I wanted to do something that felt like Italian neorealism, or the films of George Stevens, which look thoughtfully composed but realistic. I tried to triangulate people in the frame so as to show the protagonists relating to each other in real time.

"In a theatrical motion picture, you can convey that by doing a close-up of one person, then a close-up of another person, and cutting them together. You can do that in verité too, but it's never as convincing, because every cut reminds the audience that real time is being interrupted."

Though Wohl had a Jewish upbringing in Queens, and McDonough was reared Irish-Catholic in Brooklyn, the cameraman observes that both share "a certain kind of New York working class/lower-middle-class culture and values. We don't have to spend time theorizing about what we want to shoot. Our reactions to family situations and our instincts about what is interesting and humanly important are remarkably similar. For me, shooting *Best Boy* and *Best Man* was a return to the immigrant family life of New York in the Forties and Fifties. It was — is — the world I grew up in."

For Philly, the camera and crew became a kind of "security blanket" as he embarked upon new experiences in *Best Boy* and *Best Man*. His family instinctively trusted the camera and its operator with cousin Ira directing the



Photos by Cori Wells Braun, courtesy of the filmmaker.

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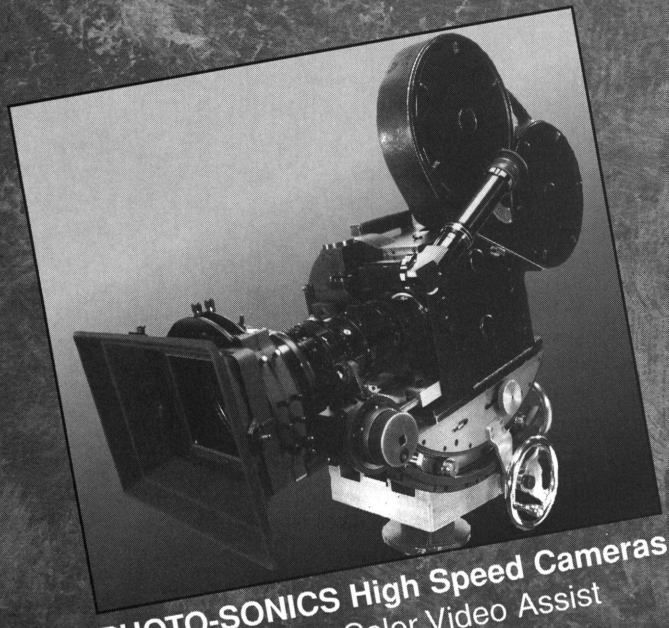

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action. McDonough kept his equipment as unobtrusive as possible to allow real life to unfold on film.

For *Best Boy*, the cameraman used a General Camera CP-16R and Kodak's now-obsolete 7247 125 ASA film; he utilized available light, sometimes augmented by a 150-watt Sun Gun mounted on the camera, which he bounced off of Max and Pearl's 8' white ceiling for a bit of fill light. A now-defunct lab process helped reduce the contrast of the negative.

For *Best Man*, the advent of faster, more forgiving emulsions meant that McDonough could almost always shoot indoors without any lighting. "When Tom shot *Best Boy*, there were only a couple of film stocks available," says camera assistant John Thoma, who supplied one of the Aaton 16mm camera packages used on *Best Man*. "In keeping with that philosophy, Tom wanted to shoot with only one film stock for *Best Man*. He decided upon Kodak's 200 ASA 7293, a fine-grained stock that is a good compromise for working indoors and outdoors."

McDonough also utilized the same Angenieux 9.5-57mm zoom lens he had used for *Best Boy*. "This particular Angenieux had become something of an antique," the cameraman admits, "but I like it because it's fast and very good for filming indoors. It also tends to be less 'contrasty' than the crisp modern lenses, such as Zeisses. My instincts told me that with a bit more contrast, the lens would have unnecessarily exaggerated whatever grotesque characteristics Philly and the other developmentally-disabled people might have had."

Soundman Peter Miller went from a Nagra III and a Nagra 4.2 on *Best Boy* to an HHB digital audiotape machine on *Best Man*. The much-lighter DAT machine can record for two hours at a time, rather than the 30 to 45 minutes allowed by the Nagra, while Audio Diversity's new radio microphones catch sound with less interference and from further away.

In the editing room, Wohl abandoned his old 16mm flatbed Moviola for a used D-Vision system, "which meant I could edit a scene 100 different ways and I didn't have to deal with the workprint tearing or ending up in a jumble on the floor."

McDonough found that the challenge on both films was to rely upon his own ability "to zen into Philly and his family," which is one reason he did not wear a headset. "Many verité cameramen do wear headsets, and perhaps there are things I'll miss because I don't know what's being said," he admits. "But I don't want to be listening to the radio while I'm shooting. It's too much information — I just want to use my instincts."

McDonough often shot at 9.5mm, very close on one subject, with the other protagonists somewhere in the background. His goal was to "layer" the protagonists in the frame, almost as if he were blocking a feature film. In *Best Boy*, while Pearl was feeding Max in his hospital bed, McDonough was sitting less than three feet from Max. "I was moving between his face and Pearl's, back and forth and following focus," the cinematographer says. "That's my favorite shot in either film. There is something very tender in what is going on and in the way the camera moves."

When Philly and his widowed sister, Frances, sing "Sunrise, Sunset" in *Best Man*, we learn what the siblings mean to each another. "Frances is in close-up profile, and Philly is in the background, sitting in a chair and noodling along," McDonough recalls. "When a certain phrase in the song describes two people getting married, I shift the focus to Philly, which implies that these people are very close."

The cinematographer's simple, intuitive camerawork helped Wohl avoid editing a "cutty" kind of film. "For me, the perfect example is the scene in which a psychologist asks Philly to count to 10 in *Best Boy*," Wohl says. "Tom stays on Philly — 1, 2, 3, 4 — which takes guts, believe me. Then he slowly pans past Frances and Max to Pearl, who is silently counting along. That tells you everything about the relationship between Philly and his mother."

However, the *Best Boy* and *Best*

Man productions did endure a few mishaps. Before Miller came to work on *Best Boy*, a previous soundman blithely announced that his batteries were dead just before the crucial moment when Philly catches the bus for his first day of school. "That sent us racing to the city at about 100 miles an hour to get new batteries," Wohl recalls, wryly. And on *Best Man*, there were times when the reticence about using lights backfired. Their Sun Gun did little to illuminate one scene set in the tall, dark lobby of Philly's synagogue.

McDonough, who has just written a book about Steadicam pioneer Ted Churchill, considers *Best Boy* and *Best Man* to be the high points of his professional life. "There is something ghoulish about some verité films, because you're filming people in extreme situations and waiting for them to break down. In Ira's films, we did peep on people, which is what you do in verité. But there was also a real sense of family concern, of passionate advocacy for Philly and his family."

Conjuring *Passion in the Desert*
by Jean Oppenheimer

Photographing wild animals — even those raised in captivity — can be a dangerous business, and few animals are as unpredictable as leopards, whose short attention span, heightened sensitivity and deadly speed make them one of the most feared of the great cats. Director of photography Alexei Rodionov (*Come and See, Orlando, Mussulman, Talk of Angels)* therefore had quite a hurdle to overcome while shooting Lavinia Currier's *Passion in the Desert*, the hypnotic tale of Augustin (Ben Daniels), a young officer in Napoleon Bonaparte's army who forms a strange bond with a leopard after he becomes lost in an Egyptian dustbowl.

Adapted from a novella by 19th-century French writer Honoré de Balzac, *Passion in the Desert* was shot entirely on location in the Jordanian territories of Petra and Wadi Rum (where some of *Lawrence of Arabia* was filmed), as well

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as Moab, Utah. The Russian-born Rodionov, who graduated from Moscow's All Union State Film Institute and spent several years as a television and feature film cameraman, operated the A-camera in Jordan and the B-camera in Utah. When filming the cats, he favored a long lens (often a Nikkor 300mm T2 with a 2x extender) because it gave the animals much more space. Due to the inherent danger of working with such animals, Rodionov could not execute as much handheld work as he would have liked. The cats' unpredictable dispositions also made it virtually impossible for him to shoot traditional masters and then restage for tighter coverage. In addition, leopards tire very quickly and cannot work for more than an hour at a time. "They are extremely vulnerable animals and are disturbed by having people in their view," says Rodionov. "Trainer Rick Glassey had to have direct contact with them all the time. He was standing so close he was often in the shot. It was a great limitation to getting a wide shot. We would shoot the full 10 minutes in the magazine — we were picking up small pieces as if we were doing a mosaic."

Above: Director Lavinia Currier (seated) observes Russian-born cinematographer Alexei Rodionov (behind camera) during the production of *Passion in the Desert*, a film adapted from an Honoré de Balzac novella. Right: Napoleonic soldier Augustin (Ben Daniels) takes aim in a desert-bound melee between Gallic guardsmen and the Egyptian Mameluke militia.

First-time director Currier, who spent seven years trying to bring this project to the screen, wanted *Passion in the Desert* to have a fairly natural look with a distinctive, dreamlike quality. "In the Balzac story, it's clear that the soldier falls in love with the cat," she remarks. "A lot of people can't take that aspect of the story; they can't believe that could happen. Because it is such an unbelievable [concept], I felt it needed to be visually believable.

"Alexei had to produce a feature film look under documentary film conditions. It was very difficult planning for either lighting or camera moves. We did use lights around the leopards — they didn't seem to mind. What was difficult was getting the action to play in the area we had lit. We had to be prepared to swing the camera around and catch the cat in a place that wasn't anticipated. That meant that for many of the scenes we were relying upon available light."

Passion in the Desert was shot in small increments over a period of three years: four weeks in Jordan in December of 1994; 12 weeks in Jordan, from April to June of 1995; and six weeks in Utah during the spring of 1996. Continuity became an ongoing problem because the light in Jordan is markedly different from that of Utah. "The structure of the sand in Jordan is extremely fine, like a powder," explains Rodionov. "It is always in the air and works like a gold filter, giving a golden quality to the light. I would compare it with using a warm black ProMist." Utah, by contrast, has saturated, deep blue skies. Fortunately, most of the filming in Utah took place inside a cave dressed to resemble a similar cavern in Jordan. Rodionov relied upon careful use of lighting to additionally tie the two locations. For example, "we used cool Roscolux C for our reflectors in Jordan, where the light had that very specific golden quality and the sand had a pink [tint]," he remarks. "Utah was the opposite — the light was cool and we used gold bounce."

Tiffen's black ProMist filters came in handy in both locations, but Rodionov also utilized some custom-made filtration in Utah. "I put bronze pigment on the glass. It works like a black ProMist but gives a little brown to the shadows. I just blew it onto the filter. The scene of Augustin dancing with the leopard was shot with this."

Nocturnal animals by nature, leopards are averse to hot weather. In spring of 1995, however, Jordan experienced an unprecedented heat wave, with temperatures soaring as high as 110°F. During those sweltering days, the cats simply refused to perform, even for scenes taking place entirely inside the cave. Instead, the scenes had to be shot at night, when it was cooler, with HMIs positioned outside the cave's opening to simulate sunlight.

Eventually, Petra's stifling heat forced most of the sequences involving the cats to be postponed until the following spring, when an appropriate Utah location was found. In Jordan, Rodionov had enjoyed a certain freedom of movement inside the cave. But Alton Walpole, producer of the American portion of the

Photos by Mary Greenway and Richard Cuerdon, courtesy of Fine Line Features.

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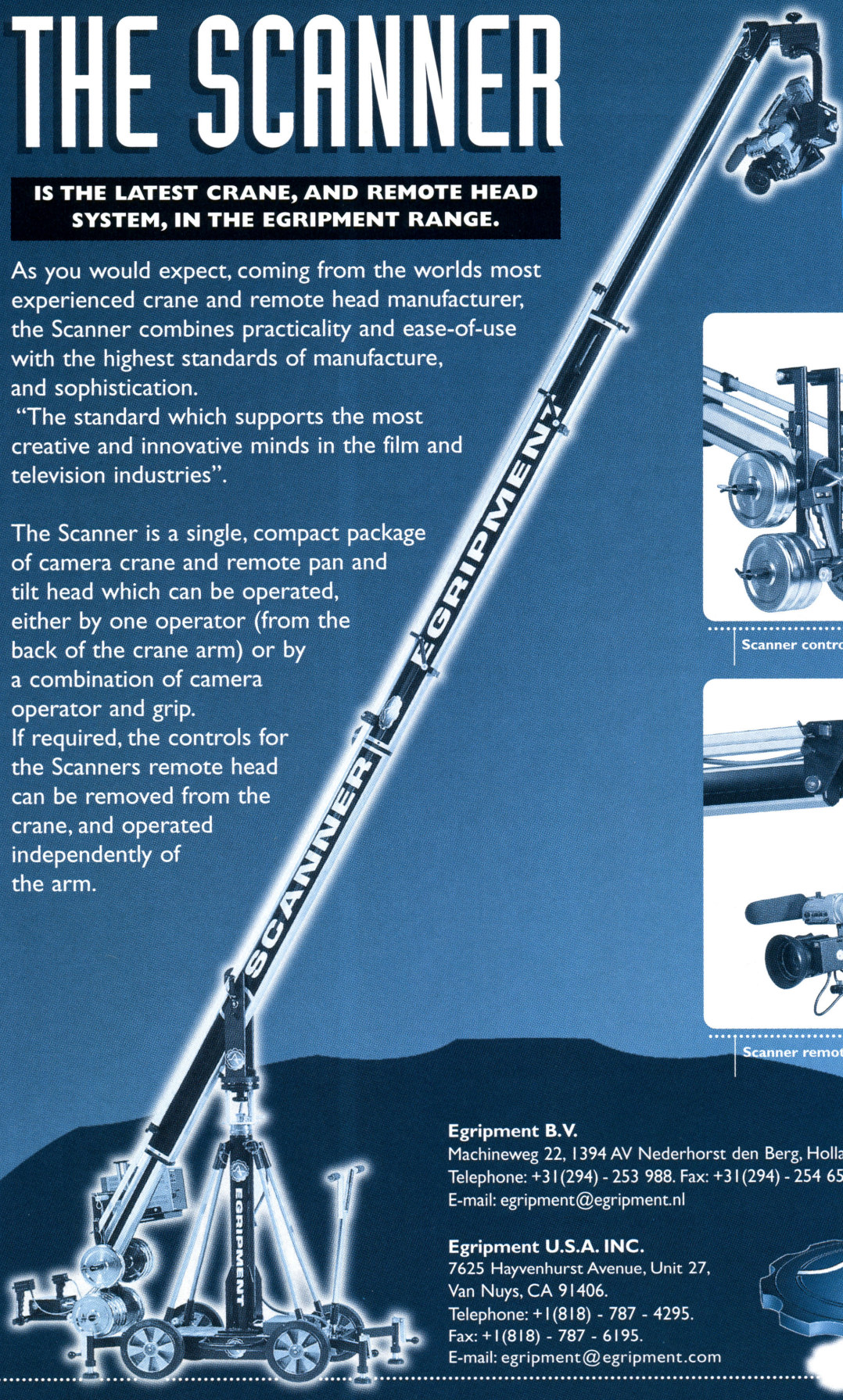

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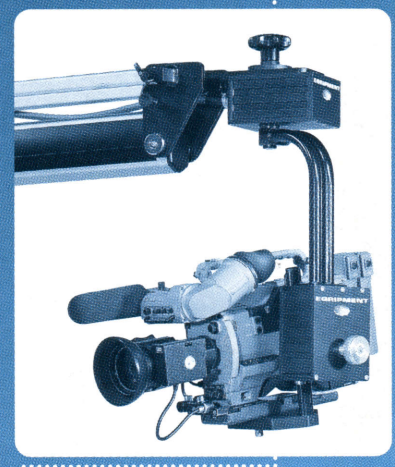

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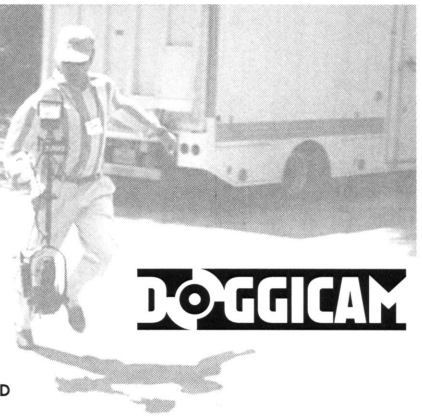

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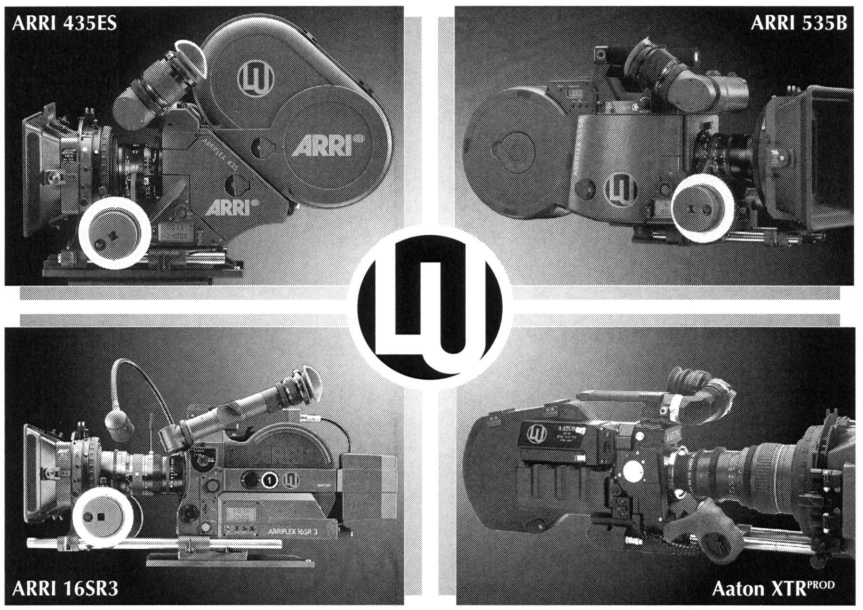

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shoot, decided that such an approach was far too risky in Utah. He had good reason for concern: while shooting a cavebound cat sequence in Petra, Rodionov, Currier, the first A.D. and the continuity person lay in two pits dug into the ground. One of the leopards panicked and charged the camera, leaping over it — and the crewpeople — before racing out of the cave. In Utah, the crew and equipment were hidden inside 6'-square wire cages covered with Duvateen, while the camera peeked out through a small hole. Though a smart safety measure, the cage restricted the camera's mobility.

The leopard doesn't actually appear onscreen until almost halfway through the picture. The first part of the story concerns Augustin and Gallic artist Venture (veteran French actor Michel Piccoli), whom the soldier is escorting across the desert. This section contains scenes of skirmishes between French militiamen and Bedouins. The battle sequence was filmed over a period of several days, but had to appear as if it occurred over a single morning. "We tried to keep a feeling of front light," comments Rodionov. "Our main artificial sources were 12' by 12' frames with silver reflectors. We also used 12Ks and sometimes three or four powerful lights put together to avoid multiple shadows."

Included in this portion of the film is a long sequence during which the wayward Augustin and Venture try to navigate their way out of the arid wasteland. History records that Napoleon had commissioned artists to document the Egyptian campaign; as a visual reference for the film, Rodionov managed to get his hands on some of the actual sketchings.

"The characters were facing nature and time, so the heat of the desert, the vastness of space and the time flow were the key points," asserts the cameraman. "In terms of color, [we focused on] the relations between blue and gold — the sky and sand — as well as between brightness and darkness — day and night. Once Augustin encounters Simoom [the leopard], the relationship between them and the inner world of Augustin comes to the foreground. The

world becomes more material and heavy — red, brown and faded green became the key [colors in our palette]."

In the film's first half, Currier wanted to accentuate the desert's heat and hypnotic qualities in subtle ways. "We were trying for a dreamy tone both visually and in terms of the rhythm and pacing," the director notes. "We wanted the colors to be desaturated to make scenes involving the leopard more realistic. Augustin is no longer lost, and he becomes integrated with the landscape. These scenes are more naturalistic. When the soldiers return, it's a shock for him and there's an unreality which comes back into play."

Among the lamp gels Rodionov relied upon were Cal Color green #20 and 30, used for reducing color saturation at night. On the lens, he used Tiffen's black ProMist and warm black ProMist; LLDs for dusk and night shots; 1/4 and 1/2 Soft FX; and SE grads (ND, coral and blue). A polarizer was used for almost all of the film's daylight desert exteriors. "We also protected the lens with 'eyebrows' on the matte box, from all four sides and as close to the edge of the frame as possible," adds Rodionov. "Sometimes we used flags on C-stands for even better protection."

To avoid any feeling of optical trickery, Rodionov tried as often as possible to maintain the perspective of human vision. However, the small stature of the leopards — which were only about 2' tall — frequently led him to place the camera on the ground, positioned at a slight upward angle.

The cinematographer selected Eastman Kodak's 50 ASA EXR 5245 stock for daylight exteriors, 200 ASA EXR 5293 to extend the shooting day, and the 500 ASA EXR 5298 for night scenes. In Jordan his camera package consisted of Arri BL-4s and an Arri 35-III, chosen by Rodionov partially because of their ability to withstand heat and sand (the cameras were further protected with a tight seal of plastic-wrap, although there was no way to prevent a few scratches). An Arri 535 was later employed for the Utah shoot. In addition to the Nikkor lens, his lenses included a set of Zeiss primes and

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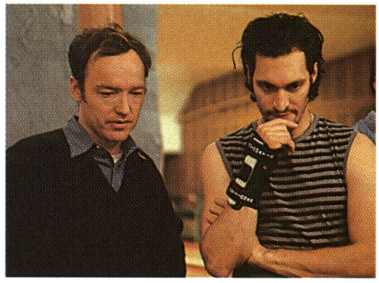
To place the viewer amid the onscreen action, Rodionov favored 24mm, 28mm and 40mm lenses, as well as an 85mm for extreme close-ups. To avoid the postcard panoramas one is tempted to capture when presented with vast, open areas, the cameraman rejected long lenses for all but two landscape shots: the opening shot of a camel, and a scene in which Augustin approaches a Bedouin tent, both of which were shot with a 600mm lens. For the most part, however, he used 100mm, 135mm and 180mm focal lengths.

Passion in the Desert was Rodionov's third English-language film, and he hired many of the same crewpeople who had worked with him in Spain on *Talk of Angels*, an English-language film scheduled for a summer release by Miramax. He expressed kudos for his continuing core crew collaborators, including first A.C. Joan Benet, second A.C. Marc Beneria, key grip Toni Jil and gaffer Emilio Samper.

For someone who had never worked with animals before, Rodionov experienced quite an introduction with *Passion in the Desert*. And while the shooting schedule's many interruptions were at times frustrating, the lengthy production did prove to be something of a blessing; the film has a mesmerizing sense of movement and rhythm which would seem to be at odds with the sharp restrictions placed on the camera. Rodionov concludes, "When you are shooting for so long, you get a special feeling about space. It's not the result of your analytical ability. Rather, it becomes part of you — it is natural."

Playing a Risky Stock on *Buffalo 66*

by Jean Oppenheimer



Below: In the climactic dream sequence of *Buffalo 66*, Billy Brown (writer/director Vincent Gallo) prepares to put a bullet in his head. Photographed as if "frozen" in time, Gallo remained motionless as the camera (running between 80 and 120 fps) was shifted around him in varying angles. Right: Gallo and director of photography Lance Acord.

Buffalo 66 marks the directorial debut of actor Vincent Gallo, who also wrote, scored and stars in the film. The tale concerns Billy Brown (Gallo), a troubled young man trying desperately to win the affection of his wildly dysfunctional, unloving parents. Just released from prison, Billy kidnaps a tap-dancing teenager (Christina Ricci) who will act as his bride when he returns home for a visit.

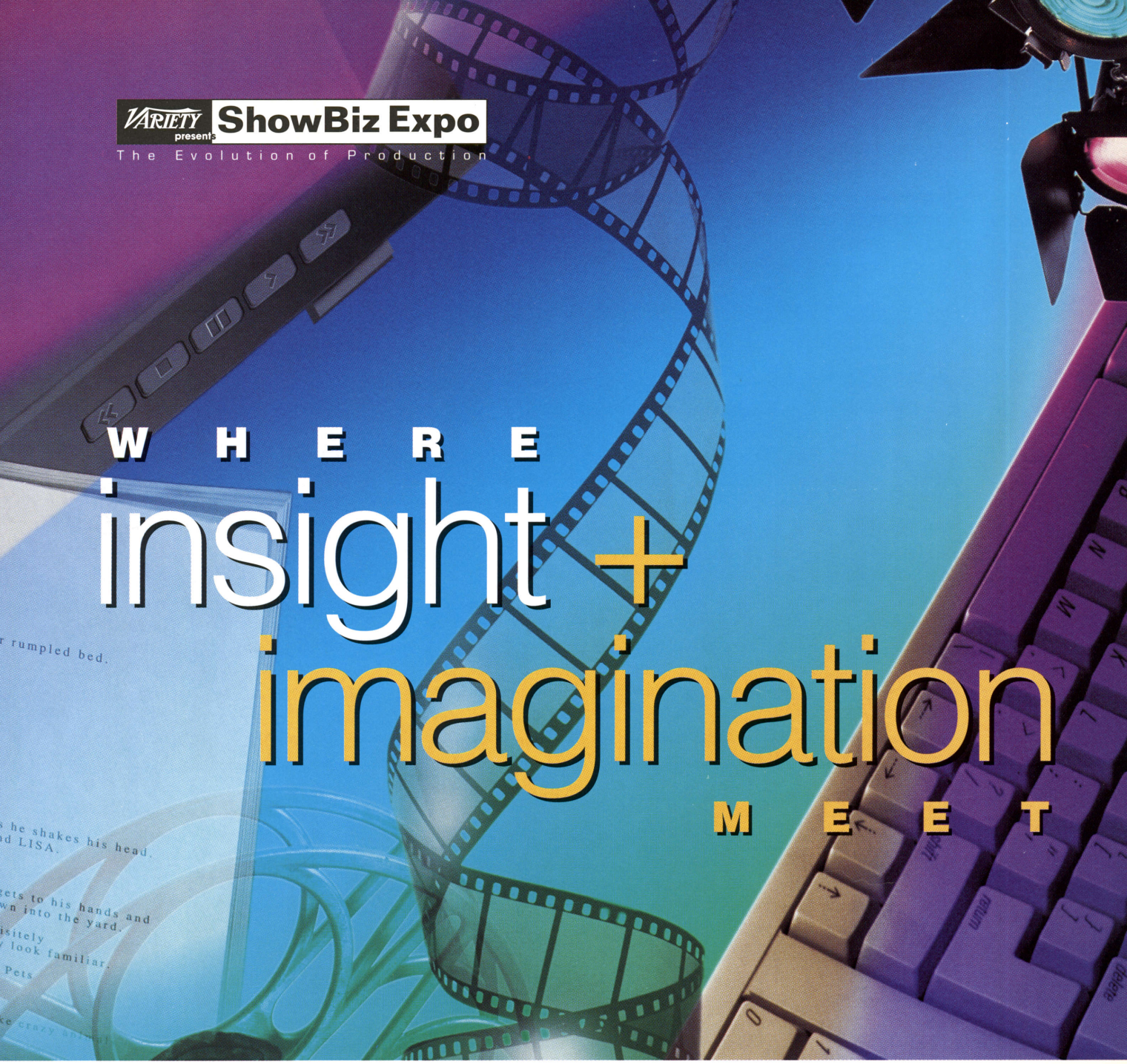
Gallo insisted that the film be shot on 35mm reversal stock. The fact that Kodak's 160 ASA Ektachrome 5239 isn't normally available in 1,000' rolls was a major concern; the fact that the production hadn't lined up any reliable means of processing the film was an even bigger one. (While 5239 had recently been used extensively on such films as *Clockers* and *U-Turn*, those pictures' respective directors of photography, Malik Sayeed and Robert Richardson, ASC, had elected to cross-process their footage in negative chemistry, thus eliminating the need for reversal processing machines.)

Director of photography Lance Acord had shot with reversal stocks before — and had also worked previously with Gallo. "I shot an Italian jeans commercial that Vincent was in," he relates. "The director wanted the spot to look like an old print of [Jean-Luc Godard's 1965 film] *Pierrot Le Fou*, with Vincent as the Belmondo character. I chose to shoot with reversal to obtain that faded look you see in older prints, while still maintaining strong saturation in the primaries."

Acord had also shot a lot of reversal stock during his student days at the San Francisco Art Institute, where his main influences were such filmmakers as Bruce Conner, Stan Brakhage, Jonas Mekas, George Kuchar and Keith Sanborn, most of whom lectured or taught at the school. "I did a lot of hand-processing with Ektachrome stocks, experimented with outdated film, optically printed Regular 8mm film, and basically just screwed around for four years with film as a textural medium," he notes.

Buffalo 66's subject matter is by

Photos by Lorenzo Bevilaqua, courtesy of Lions Gate Films.



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turns dark, grim, painful and comedic. Rather than playing to the darkness photographically, Gallo and Acord decided to set their tale in a bright, Ektachrome world. "The references for the look of the film were very simple," comments Acord. "One was the NFL Films feature presentation of the 1969 Jets versus Colts championship game." (When Gallo was a kid, his father took him to see this NFL Films production, which had been shot on high-contrast reversal Video News Film, and the experience made a deep impression on him.)

Additionally, the duo looked at some old photographs, "the kind you might find in a suitcase under a table at the flea market," suggests Acord. "Some were nudes of someone's girlfriend, probably lit with Photofloods and shot on Kodachrome. The girl was reclining on an avocado couch, against a brown curtain and a dull orange rug. There is a sincerity and purity in the crudeness of the technique that somehow makes work like that very revealing and powerful. We tried to bring some of that to the movie."

In lighting the picture, Acord mainly deployed tungsten Photofloods, as well as open-faced Mickeys and Mighties. Because 5239 is balanced for daylight, Acord generally applied 1/2 CTB correction on his lamps. However, different and often contrasting colors were always employed for key and ambient lighting. When illuminating the actors, the cameraman favored a golden light for the key. Unbalanced fluorescents were then generally used to provide ambience; adding green to the shadows contributed a certain emotional heaviness to certain scenes. Acord then kept skin tones about 2/3 of a stop over to create a more bleached golden hue. Christina Ricci proved to be a particularly interesting subject to light. "She was like filming a lightbulb," marvels Acord. "She radiates light. Her skin has a kind of translucent reflective quality."

The filmmakers had no idea how their footage looked, though, because they had no means of processing it until a week into production. When he joined the project, Acord contacted Bono Film and Video, a lab in Arlington, Virginia. He knew Joe Bono and his son Tim had been working on modifying a 16mm reversal processor to use with 35mm stock. (The lab does a lot of 16mm processing for the Library of Congress and the Pentagon, both of which still use reversal stocks for duplicating films. The Pentagon also uses reversal in some of their high-speed test cameras.) However, it would take a few more weeks before the converted processor was ready.

Fortunately, an age-old technique provided the cameraman with some guidance on his exposures. After graduating from the San Francisco Art Institute, Acord had worked as as assistant to photographer/filmmaker Bruce Weber, and he put his knowledge of still photography to work on *Buffalo 66*. "When you shoot 'chrome and use the E6 process, you do film clip tests," he explains. "On each roll of film, you clip either the front or the end of the roll to gauge the exposure on the roll, and then you can push- or pull-process to adjust for the exposure you want.

"For each scene in *Buffalo 66*, we would do a clip test. We'd shoot about 40 feet of film — often with stand-ins — and then log that with a scene number and a clip number. In the script notes we would identify which camera roll corresponded to each clip test. As soon as the lab got things going and began processing film, they would run the clip test for each scene, at which point we would know whether we wanted to push or pull the film to adjust for exposure. They could then process the rolls accordingly."

Acord, who served as both director of photography and operator, likes to keep his lens fairly wide open whenever possible. "If we had more light, I would usually ND down to around a T2 or a T2.8," he notes. "I like the feeling [you get from] a loss of depth of field."

The production's camera package, procured from Otto Nemenz in Los Angeles, included a Moviecam Compact, a Moviecam SL, an Arriflex 435ES and Zeiss Superspeed lenses. The 435ES was brought in specifically for a scene in a bar at the end of the picture, for which Acord wanted to use the RCU speed-aperture control. The sequence finds Billy entering a strip joint, determined to kill the club owner, a nemesis from his past. In thinking about how to stage the scene, Acord remembered a technique utilized by French commercial director Michel Gondry, which employed a circular still-camera array that was simultaneously triggered — "freezing" the subject from multiple angles. The resulting frames were then sequentially morphed and animated to create a virtual pan and 3-D effect.

Acord thought he could add to the shock of his murder sequence by similarly "freezing" his actors, but he used a different method. "I discovered it by mistake," he confesses with a laugh. "I had previously worked on a project that was to be composed of a series of stills, with the exception of a few scenes that we would shoot with a movie camera. However, we used the movie camera as a stills unit and just shifted the angle slightly while all of the actors froze in place. By moving the camera around the completely motionless actors, we got the same kind of unnerving 3-D effect that Gondry had achieved [with the still-camera array].

"A person can only hold so still, however," he continues. "The thing that made it possible was ramping from a regular camera speed to a high speed. The actor would freeze mid-scene, at which point we would ramp up to 80 or 90 frames per second, sometimes as high as 120 fps, and then quickly shift the camera from one side of the actor to the other." Ramping the frame rate would ensure that whatever small movement the actors made would be imperceptible.

To enhance the 3-D effect, and create the impression that a split-second in time had in fact been captured, makeup artist Goochie Westman found some blown-glass pieces, resembling splashing red liquid, which had been used for a cranberry juice commercial. When these were attached to the back of Gallo's head, it looked as if a bullet were passing through his skull, with the blood effectively "frozen" in the moment of death.

While *Buffalo 66*'s camerawork

primarily consists of either locked-off dolly shots or simple pans and tilts, a scene in which Billy breaks down in the bathroom at a Denny's restaurant was done handheld. "By doing that scene handheld, we created an involvement [between] the camera and the character," says Acord. "It didn't have the sense of detachment that a lock-off or a dolly shot might have had. Instead, it felt as if the camera was paying attention to Billy and listening to him."

The problem of processing the 5239 still lurked, however. Bono Film and Video's idea of modifying a 16mm reversal machine sounded great in theory, but the reality of completing such a task proved to be complicated. Reversal stock has a thick anti-halation backing that sloughs off during processing, clogging filters and preventing the chemistry tanks from agitating properly. To solve this problem, bigger filters and pumps were installed to compensate for the 35mm stock's additional waste. However, "we found that if we had to pull the film at all — which involves running it through the chemicals more quickly — the drying cabinets were no longer sufficient in size or blower power to dry the film," Acord recalls with a sigh.

Furthermore, when film is wet, it gets very heavy, increasing the amount of tension it takes to pull it through the processing machine; the 35mm stock demanded more constant torque than the converted 16mm processor could initially handle. "At one point we stretched some perfs on a roll," says Acord. "In fact, in terms of damaging the film, that was one of the bigger [dangers]. The Bonos caught it really quickly; only about 100 feet was affected. But at that point they had to stop the run, go back in, pull the rollers, readjust the tension and start all over again. We weren't able to run film for another two days." Miraculously, very little footage was lost.

The next potential problem area was making the print master. "Kodak 5272 currently is the only internegative stock designed for making a print master from reversal," states Acord. "It's an old stock and there's only so much you can

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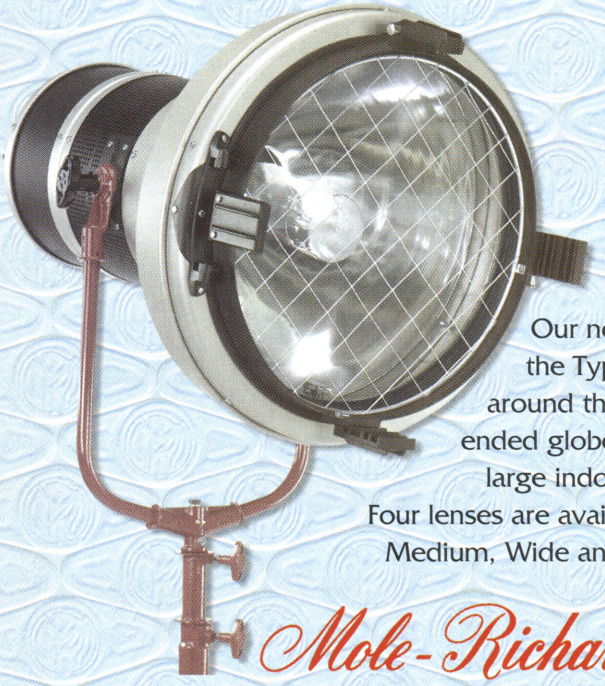

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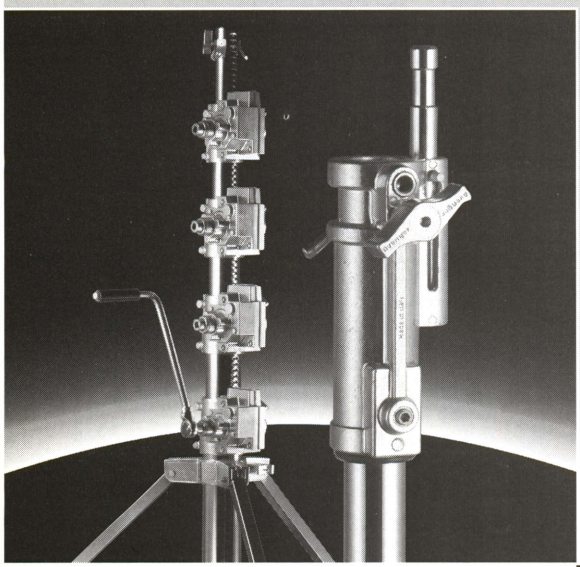

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"John Allen at Cinema Arts in New Jersey made the internegative," he adds. "Problems with contrast were solved by selectively post-flashing scenes and then pulling the processing on the interneg by a stop. John was able to get the contrast back around to where the original film was; you lose some of the luster, but the contrast is brought in check. Dan Caldwell was the timer at Deluxe, and he also did a great job."

Acord also had additional praise for his crew, which included first assistant John Clemmons, gaffer Toshi Ozawa (who occasionally assumed operating duties), key grip Gino Nicks and best boy Joseph Messier. The cameraman further acknowledged postproduction supervisor Deborah Brock and script supervisor Katherine Gore, stating, "Katherine was invaluable to me on my first feature." The cinematographer added that Bob Strickland at Eastman Kodak in Rochester, New York not only kept the production supplied with the 5239 stock, but made everyone's life easier by making it available as 1,000' loads.

Despite the difficulties, Acord believes that reversal stock was an ideal choice for *Buffalo 66*. "When I look at the film I feel as if I'm seeing a Kenneth Anger film with a decent budget. It looks as if it was shot in the late 1960s or early '70s, buried in a box or left in an attic somewhere, and then discovered, restored, printed and released. That look somehow suits the story of Billy Brown very well." ■

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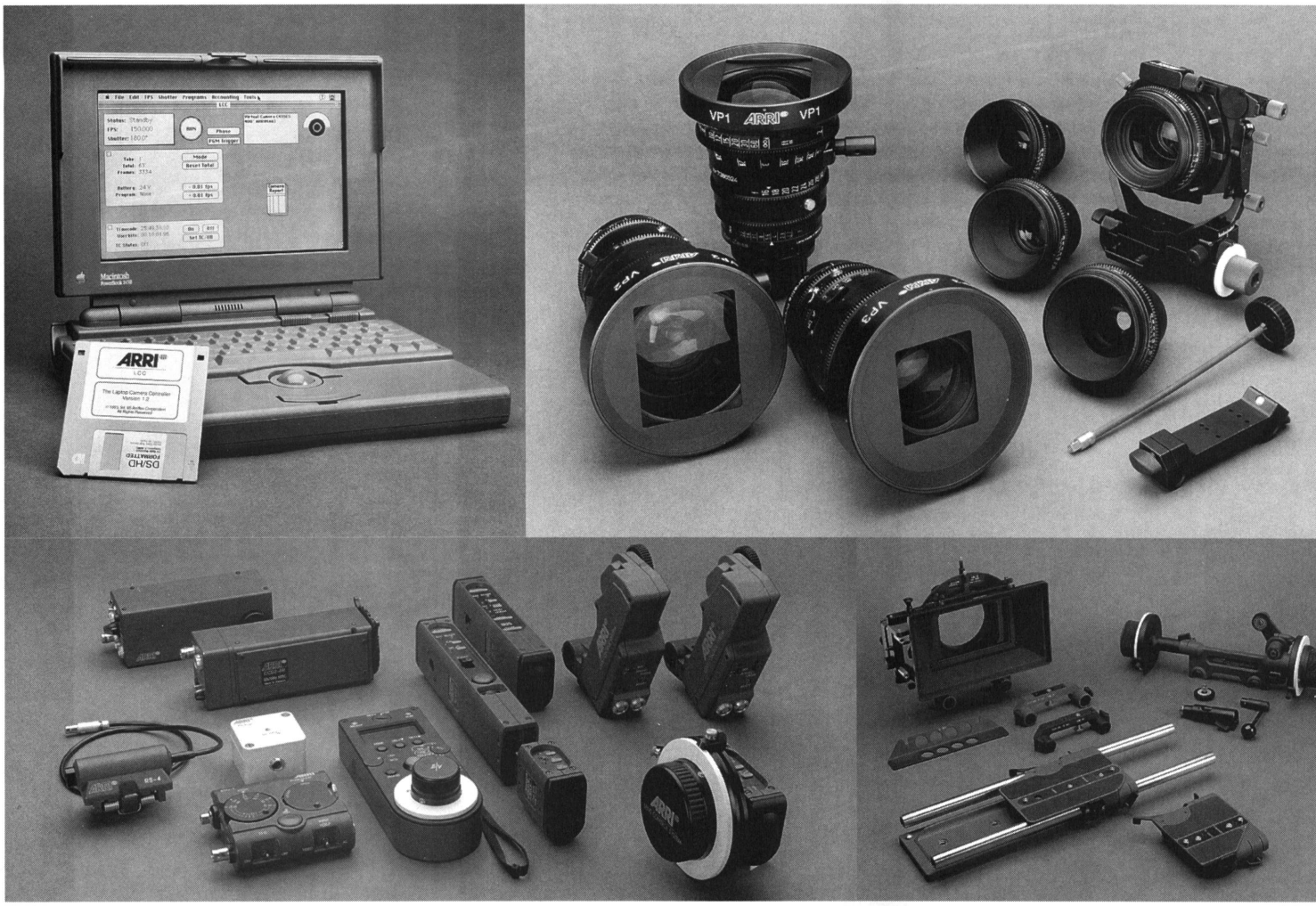

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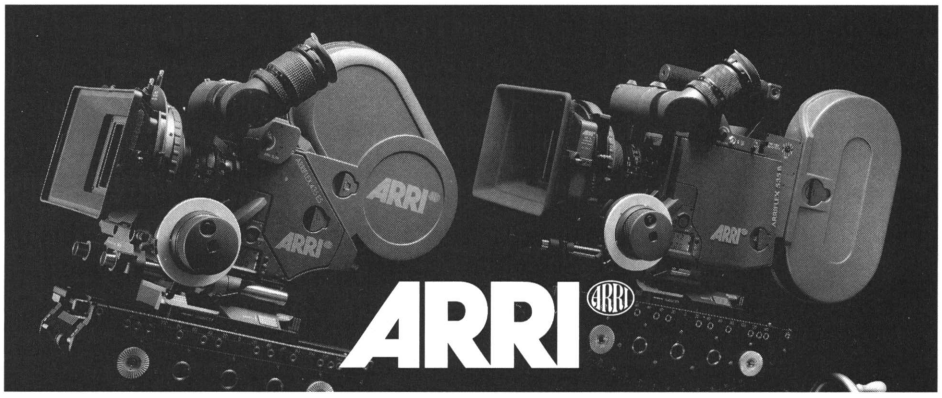

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When Worlds Collide

Cinematographer John Schwartzman, ASC reteams with director Michael Bay to expose Earth to a planet-threatening asteroid in *Armageddon.*

by David E. Williams

Photography by Frank Masi

A NASA team drills into the center of the threatening asteroid. The remarkable set was created by production designer Michael White.

Despite being a dauntingly complex project budgeted at more than $100 million, the concept for the sci-fi adventure film *Armageddon* seemingly dropped out of the sky. Director Michael Bay recalls, "After *The Rock*, I didn't want to do just another action movie, but I couldn't find a story I liked. I was working with [executive producer] Jonathan Hensleigh, trying to come up with an idea, and he said, 'You know those horseshit asteroid-destroys-the-world movies? Well, what if we did a really *cool* one?'"

Their tale opens as astronomers discover a Texas-sized object hurtling toward Earth: a "global-killer" asteroid like the one which wiped out the dinosaurs. In an early indication of the threat, shards of the stupendous slab rain down to perforate New York City. Mankind's survival strategy is to launch a pair of next-generation space shuttles, land on the planetoid's surface, sink a shaft into its core, and insert a nuclear weapon. The blast is designed to split the asteroid in half, causing the pieces to pass by Earth. Tapped to join the landing team is a crack oil driller (Bruce Willis), who insists on bringing along his band of roughnecks (including characters played by Ben Affleck, Steve Buscemi and Will Patton). The first half of the picture illustrates NASA's attempts to train this motley crew for the mission, while the second witnesses their brave attempt to rise to the momentous occasion.

"The scary thing is that these global killers pass us all the time,"

Bay says, recalling the worldwide scare this past March over Asteroid XF-11, a two-mile-wide object which was mistakenly projected to hurtle within 30,000 miles of our home world in the year 2028. "That's one of the reasons why I was interested in this story. It's totally heroic — these everyday Joes have to save the world, and it depicts the best of the space program. In fact, I kept thinking about *The Right Stuff* throughout the process of making *Armageddon*, because I wanted to capture that same heroic spirit I felt as a kid while watching the space race to the moon."

Countdown

Preparations for *Armageddon* geared up in early 1997 as Bay began working with storyboard artist Robbie Consing (*The Game*) and production designer Michael White (*Crimson Tide, The Jackal*), both of whom had worked on *The Rock*. The director says, "Literally everything had to be designed: state-of-the-art space shuttles, space suits, a *Mir*-style space station, the asteroid itself."

However, such scope doesn't come cheaply, and as Bay recalls, "The production hinged on NASA giving us full cooperation. We knew we couldn't make the movie without them." Producer Jerry Bruckheimer, whose credits also include such strikingly visual films as *Con Air* (photographed by David Tattersall, BSC), *Crimson Tide* (Dariusz Wolski, ASC), and *Flashdance* (Don Peterman, ASC), was instrumental in earning the trust of the National Aeronautics and Space Administration. "We submitted a script very early on," Bruckheimer explains. "If NASA says 'Yes,' then you have to go to the Air Force and the Department of Defense — they really control the situation. I had a good relationship with the DOD on *Top Gun*, so that helped. And even though they didn't sanction us on *Crimson Tide*, I don't think they were disappointed with the movie because it made the Navy look professional and honest. That's [the image] they're looking for." After some minor script changes for accuracy's sake, the doors to NASA's immense facilities at the Kennedy Space Center in Florida and the Johnson Space Center in Texas were opened wide for the filmmakers.

Returning for *Armageddon* was the core production crew that had tackled *The Rock* (see *AC* June 1996), headed up by director of photography John Schwartzman, ASC, a longtime friend of Bay's and a frequent collaborator on music videos and commercials. "One of the nice things about this film was that getting all of us back together was like getting a bunch of old friends together," the cameraman offers while taking a break from his cinematographic duties on director Ron Howard's upcoming comedy *Ed TV*. "There was no feeling of 'I've got to learn how to work with these other people.' It was more like, 'Let's get *back* to work.'"

Analyzing his working relationship with Schwartzman, Bay wryly offers, "John knows what I like, and he can handle it when I say, 'This lighting sucks, let's do something else.'" The director specifically refers to a dramatic night scene in *Armageddon* featuring actor Billy Bob Thornton: "I was bored with the lighting we were using, he was tired, and I said, 'Let's do something *different*.' So John shot back, 'Well, what do *you* want to do?' I then said, 'Well, I don't *know*, John…' and the crew started walking away from us as if we were in a fight. That's just the way we work. I trust his exposures and I think he trusts my eye for camera placement and how things will cut."

The situation in question "was a classic," Schwartzman says with a laugh. "Almost every two weeks we'd have a pushing and shoving match, and the good thing about it was that it was never personal and something great usually came of it. That type of thing clears the air, and Michael is a director who never carries a grudge. If you do something he doesn't like, he'll let you know and then just move on. We can sometimes frustrate each other to no end, but we're both trying to make the best movie possible."

Anamorphic excursion

Following his breakthrough success with *The Rock*, Schwartzman shot *Conspiracy Theory*, a big-budget action-thriller directed by Richard

An essential tool throughout the shoot, the Technocrane came under close NASA scrutiny after Bay devised a shot in which operator Scott Fishman would extend the 20' arm through a series of pipes and valves within the shuttle assembly building. Bay recalls, "The pipes were carrying anhydrous hydrazine. If the camera hit a valve and it cracked open, that stuff would have killed *everybody* in the building. We tried to tell these NASA guys that we were very good at operating this crane, but they wanted to check it all out. So they got on the Technocrane, worked the controls, and tested it out to see exactly how it moved and how stable is was." The device passed the test.

Photos courtesy of Touchstone Picctures and Jerry Bruckheimer Productions.

When Worlds Collide

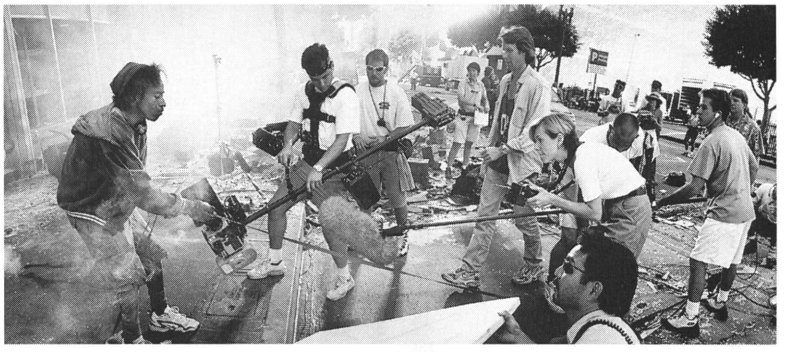
Bay (in photo at right, looking over Steadicam operator David Emmerichs' shoulder) wanted to rely on practical effects whenever possible. This was evidenced early on during the filming of scenes featuring a hailstorm of small meteorites pelting New York City. Though some plates were photographed in Manhattan, the scene was primarily shot in downtown Los Angeles (above). As Bay remembers, "We roped off seven blocks and had just four days to do some major stunts. We had seven cars flying through the air, asteroids ripping through buses — it's amazing what we did in four days." The special effects crew was headed by John Frazier (*Speed*, *Waterworld*).

Donner. Gaining NASA's cooperation was immensely helpful in shaping *Armageddon*'s content, but the cameraman's successful introduction to the anamorphic format on *Conspiracy Theory* also greatly affected the making of *Armageddon* at every level.

Though Schwartzman and Bay expressed enthusiasm for the Super 35 process while shooting *The Rock*, the theatrical prints were a bit of a letdown for both men. "The drag about Super 35 is the grain and its 'optical' feeling," Bay attests. "We did about 30 ENR-treated prints on *The Rock* to keep some of the contrast. Those were shown in major cities, but the other prints lost a lot of *snap*. The film looked good for Super 35, but we were still working with this tiny negative."

Asked to recount the lessons he learned on *Conspiracy Theory*, Schwartzman relates, "What became very apparent to me was that Super 35 is not just an optical process that makes the grain more apparent; the grain is also *bigger* because it's enlarged so much during projection. You're getting boned on both ends. The beauty of anamorphic is that there is no intermediate optical process. If you like your dailies, you're going to love your release print. The larger negative also gives you greater shadow detail and greater latitude, so even though I was shooting deeper stops in 'Scope, I felt I was using [relatively] less light to get more image.

"On *Conspiracy Theory*, I was doing very large night exteriors in New York City, and I needed to be working at least a T4 or 4.5 for them to look good. But that didn't mean I had to light *everything* to that exposure. If I could get the lenses to that range, I found that the level of shadow detail I could get in the darker areas was quite extraordinary. One of the things I explained to



Michael on *Armageddon* was that for shuttle interior scenes, I was going to be shooting at a T4.5. I might only have a T2.8 on the actors' faces, but he'd be able to read them beautifully even though they would underexposed by a stop-and-a-half. The faces wouldn't be muddy, just *dark*. I was able to do that simply because of the resolving power you get with anamorphic's big negative."

However, Schwartzman also found that it was essential to use the proper stop in anamorphic, since the poor performance of the lenses in wide-open conditions can not simply be compensated with fine-grain stocks. He explains, "Let's put it this way: I would rather be shooting at a T4.5 on [Kodak Vision 500T] 5279 than at a T2.5 on [200 ASA EXR] 5293. The difference in the quality of the lens within this one-stop range far outweighs the difference between 93 and 79, in terms of saturation, grain structure and black densities. Whatever you gain from the 93 will be lost, because at low stops, the lenses have a lot of chromatic aberration and won't perform. As soon as you get a T4, though, they magically transform into gems made of glass."

Other specific production needs also made Schwartzman lean toward the use of anamorphic. "In Super 35, any smoke or other atmospheric diffusion is going to make the image fall apart in your release print," he says, "If you stood back and looked at our asteroid set [built and housed at Disney Studios], you'd say, 'Those are Plaster of Paris rocks.' I knew that shooting on the asteroid set would involve putting a lot of debris in the air to cut down the clarity between the subject, the camera, and the set. If I'd shot in Super 35, by the time we got to a release print we would have lost the image's high end and low end, and been stuck with just the mid-ranges.

"Discussing this issue with Michael, I suggested that we should have as much control over the image as possible. If we wanted to flatten it out, we should. But *we* should have the choice, as opposed to the lab creating that effect with some intermediate optical step. As soon as he saw the detail and richness that anamorphic offered, Michael fell in love with the format."

A devout convert, Bay enthuses, "You just have so much more resolution in anamorphic, and the dupes look great. That's why I wanted to use it even though I had to

give something up in the lenses. I like the depth and close-focus effects you can get with spherical lenses, but the sacrifice was well worth it."

Schwartzman points out, however, that Bay's definition of "close-focus" is an extreme one: "What he means is that he can't take a 75mm anamorphic lens and focus it down to 11 inches. He considers the 17.5mm close-focus Primo to be a 'normal' lens. On *The Rock,* when Ed Harris was giving his speeches, the camera was literally 11 inches from his face. Most cinematographers would consider the 180mm anamorphic lens at seven feet to be close — we were routinely working where there were no more measurement markings, at about 4½ to 5 feet. And that is where camera assistants do not want to live."

Optics engineer Dan Sasaki, who works at Panavision's corporate headquarters located in Woodland Hills, California, modified Schwartzman's E- and C-series anamorphic lenses to focus much closer than they normally would. The camerman contends, "Many *American Cinematographer* readers probably don't realize that you can't just put any lens on any camera and expect it to work flawlessly at all focus distances and f-stops. Each one has its own sweet spot, and you not only have to know where that spot is, but that you can move it around; it's not set in stone. Richard Mosier, my first A.C., spent three weeks with Dan working on the astigmatizers and the front anamorphasizers on these lenses, optimizing each and every lens for our use. For example, we thought we'd be generally using our 135mm E-series lens at about 8 feet, so why not maximize the performance of the lens at that distance with a stop of T4.5? Dan is a genius with lenses, and he kept us up and running throughout the shoot."

Schwartzman reports that his camera of choice was the Panavision Platinum, since its viewfinder offers his operators the brightest image possible. The show carried two Platinums, as well as a Platinum Panastar and a Panaflex Lightweight for Steadicam work.

Interestingly, anamorphic's inherent lens-flare effect — which some argue is a prime reason not to use the format — actually became an encouraged style element on *Armageddon.* "Some people hate flares and some people love them," Schwartzman says. "I tend to fall into the Jan De Bont [ASC] school: I find them interesting and beautiful depending on the source of light giving you the flare. A fluorescent light burn obviously isn't as interesting as a very small, hot specular kick, but I like to use flares to transition in or out of a scene, or to heighten the sense of energy in a shot. It's something to be used as a tool, and either added or taken away depending on your needs."

Bay agrees, adding, "Flares are so cool that we even imitated them in some of our visual effects sequences, like when the shuttles fly past the camera on their way to the asteroid. There are lights flaring out all over the place in those shots."

To retain full control over their negative, the filmmakers plan to utilize Technicolor's new dye-transfer process on a number of *Armageddon*'s theatrical prints, making it the first anamorphic-shot feature to benefit from this technology. (It was recently used on the Super 35-shot *Godzilla.*) They may also employ Kodak's new Estar-based "Clipper" print stock, which creates a ENR-like effect without requiring any special processing. The cameraman has run some tests with Clipper on his *Ed TV* dailies, and believes it could add an extra degree of contrast to *Armageddon*'s images. "They're holding about 20 million feet of this stock for our normal release prints," he says.

Director of photography John Schwartzman at the base of a "locked and loaded" shuttle at the Kennedy Space Center. The cameraman notes, "In one respect, NASA is of the highest technical order, but like everybody else, they're working within very strict budget restraints." Administration officials were very impressed by some of the cameraman's lighting gear: "They loved the fact that we brought all of this new technology to them. Our technology is much more current that NASA's. Anybody there would admit it. For example, the shuttle itself is a 1970s design. My PowerBook laptop is more powerful than any single computer in the firing room [where shuttle launches are coordinated]. It's just that all of their systems run perfectly, and look really cool."

Spacebound

Prior to the beginning of the show's principal photography, Schwartzman set out to shoot a daytime shuttle launch at the Kennedy Space Center in Florida. Accompanied by his crew, he brought along 13 cameras to cover the April 1997 event. That alone was a complex task, but NASA's protocol added an extra degree of difficulty. "After they fill the shuttle's tanks [with liquid oxygen and hydrogen], there's a 24-hour lockdown period when nobody is allowed within almost four miles of the launch pad," Schwartzman details. "But we had cameras within 150 feet of the pad, so we had to figure out a way to set these cameras up, let them sit for two days in the Florida heat and humidity, and have them operate perfectly."

Because NASA rules prohibited the filmmakers from using their own camera-activation system (which could have interfered with the space agency's finely tuned electronics), a special code was added to the computer launch sequence to trigger Schwartzman's array 45 seconds before main-engine ignition. "Organizing that was easy," the cinematographer maintains. "The difficult part was explaining to Panavision that we had to leave these cameras — including Panastar IIs rolling at 120 fps — out in the middle of this sweltering swamp for a couple of days. I had to know that these cameras — loaded and ready

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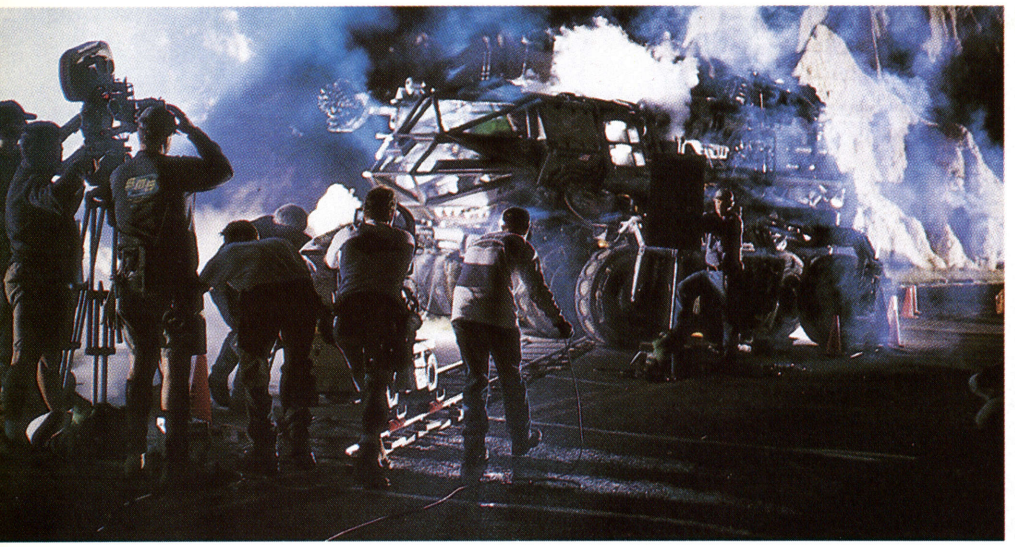


Above: Shooting asteroid action in the Badlands of South Dakota. Right: Scenes set within the film's twin space shuttles were photographed on an orbiter set built at Walt Disney Studios. "We designed them to be larger than the real thing," Bay details, "but they were still restrictive because we were up on a gimbal, shaking around." Bay notes that production designer Michael White planned the interiors specifically for 2.35:1. "Michael always used a widescreen frame when doing his drawings, lowering walls and elongating shapes to fit it more comfortably."

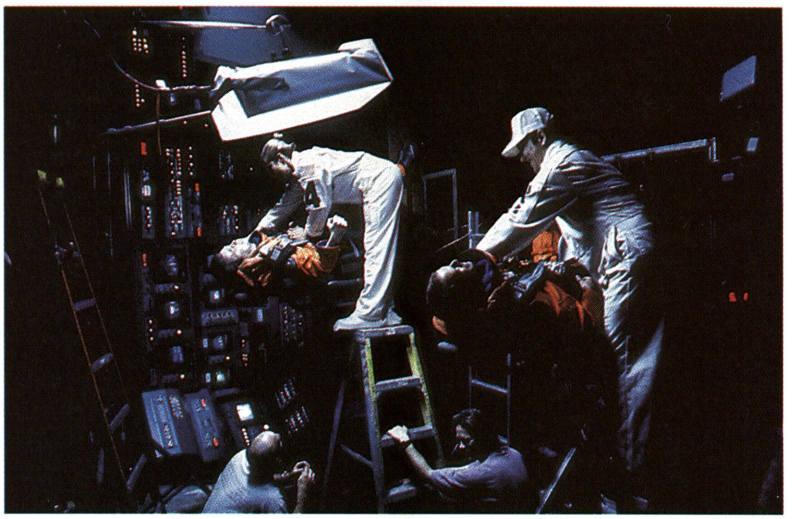
to roll — would work."

Toward that end, camera assistant Richard Mosier conducted a series of tests and made special preparations. Two 65mm camera power supplies were linked together to ensure that each camera's batteries would operate for at least 48 hours. To prevent condensation from forming on the lenses, each was rigged with a ring of 25-watt bulbs that would cause any ambient moisture to evaporate. Finally, blast-proof bunkers were built for each camera. "It all worked perfectly," Schwartzman confirms. "The footage is spectacular."

However, Bay later had a sudden inspiration that would send Schwartzman back to the Kennedy Space Center six weeks later. As the director tells it, he was in a NASA bathroom when he happened to look up and see a large poster of a shuttle blasting off into space — at night. Taken with the image, Bay changed the film's script to include a night launch. "We used both of the launches we filmed in the picture," Schwartzman says. "But from a photographic standpoint, the night launch may have been the most challenging part of the movie."

As the shuttle sits on the pad at night, it is lit by 40 10K Xenon lamps, bathing the enormous vehicle and towering gantry structure with some 200 footcandles of light. "That gave us a decent stop," Schwartzman begins, "but as soon as the solid rocket boosters ignited, we'd suddenly be up to 16,000 footcandles in about 1½ seconds. We could have used some sort of photocell with an auto-iris controller, but I didn't want to have a dynamic exposure change affect the footage." The cameraman's alternate solution was to preset the exposure on each of his individual 15 cameras, determining his stop by calculating each unit's distance from the shuttle, the angle of the shot in relation to the launch sequence, and the orbiter's altitude as pictured in frame .

Determining these set exposures required some inventive research. "I contacted this wonderful guy named Red Huber, a still photographer from the *Orlando Sentinel* who has shot every single shuttle launch," Schwartzman explains. "Studying his photographs, I selected some specific shots and determined where he was set up to get each one. Red and I then went though each photo, and he told me which stock, the shutter speed, and f-stop he had used. From there, I figured out what the stop should be for each of my cameras, based upon the use of [Kodak's 100 ASA EXR] 5248 and my various frame rates — which were anywhere from 24 to 120 fps. NASA had given me a bunch of information about the footcandles produced during the launch, but most of it turned out to be wrong, so I couldn't have done this scene without Red's help. Also, shooting the day launch told us which angles worked best with various frame rates and focal lengths." While all of the night launch footage turned out beautifully, the cameraman reports that an Eyemo camera fitted with a 40mm lens, placed some four miles away from the launch pad, may have produced the "hero" shot for the sequence.



On the rock

During a subsequent two-week "mini-shoot," the filmmakers traveled to Washington D.C., New York City and then Texas to film exterior establishing material and "Americana" footage that would give the picture's story a broader emotional scope. The production then moved on to the Badlands of South Dakota to begin shooting scenes set on the asteroid.

In the film, the shuttles *Independence* and *Freedom* crash-land on the stony juggernaut's jagged, storm-wracked surface. The landscape is violently active, with hot gases erupting though the crusty ground as the surfaces quakes with tremors. Towering crystalline formations stab upward, making the barren world appear even more aggressive and hostile.

Shaken after their hair-raising voyage through space, yet driven to succeed, the members of the Earth's demolition crew don their space suits and rev up a pair of six-wheeled all-terrain vehicles called "Armadillos." Protected by their artificial skins, the intrepid heroes begin searching for a prime drilling site. In these scenes, *Armageddon*'s cinematography and production design mesh seamlessly to render a fantastic new world.

"Like every good movie, we started with some of the toughest stuff," Schwartzman says of the Badlands shoot. "On the first night, we were lighting up about five square miles of landscape."

"We had more trucks than I've ever seen in my entire life," Bay confirms. "John had two Major Muscos, an SMS Nite Sun, and about 40 18Ks — it was really unbelievable."

Given Bay's penchant for cool blue night exteriors, Schwartzman's fixtures were primarily uncorrected HMIs, which allowed him to get the most from his wattage. Roads were cut to create a "Musco Highway,"

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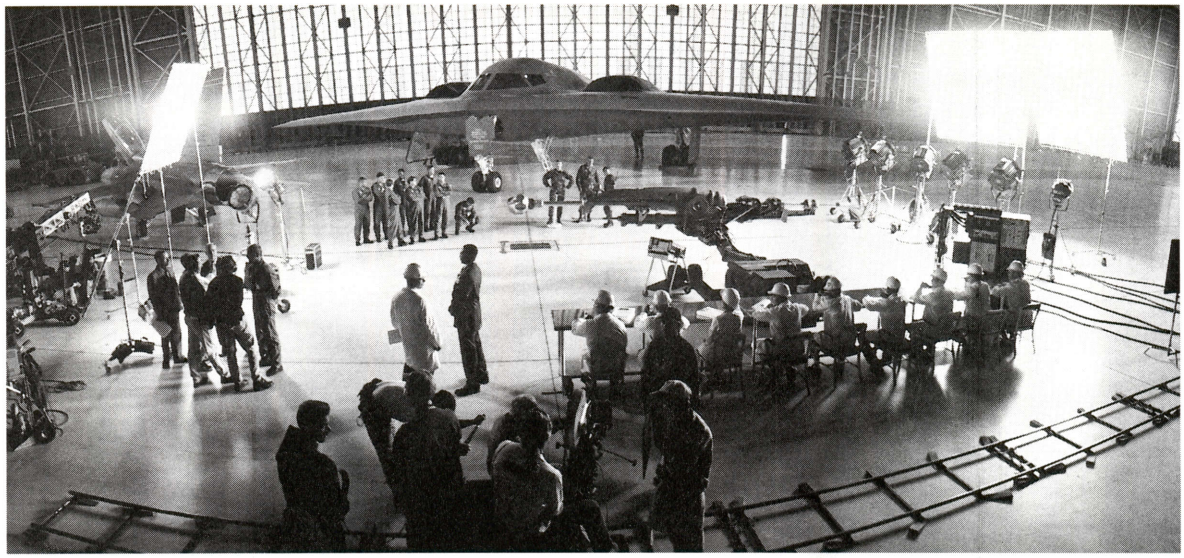


Right: While shooting at NASA, the production discovered a quiet competition between the Air Force and the Space Administration — and took advantage of it. Bay remarks, "After getting NASA's approval, we asked the Air Force, 'Could we maybe get a B-2 bomber? Or some SR-71 Blackbird spy planes?' This was stuff that has never been in movies before, and they were just parking them wherever we wanted them." HydroFlex housings kept Schwartzman's cameras dry while shooting in NASA's six-million-gallon neutral-buoyancy tank facility at the Johnson Space Center in Houston, Texas (right). The pool measures some 300' long by 80' wide and is 40' deep. "It's crystal-clear and we could see from one end to the other," Bay says. Some 35 safety divers oversaw *Armageddon*'s cast as they went through their moves wearing $2 million-apiece NASA space suits.

allowing the cinematographer to position his immense fixtures, while seven miles of cable were run to provide power. Schwartzman recounts, "We also had a Night Sun and 27 6K Pars — a lot of stuff — just to light up this landscape. And it was beautiful." However, the illumination also attracted the attention of every flying insect within a 100-mile radius, causing huge clouds of the creatures to collect around the lights. Fortunately, the various fixtures served collectively as the world's biggest bug zapper. "The heat killed them all by the second night," the cameraman says.

Schwartzman credits gaffer Andy Ryan and rigging gaffer Jeff Soderberg with laying down the electrical infrastructure for the shoot over a period of two weeks before the main unit arrived. "To maximize the location, we were moving the Muscos two or three times a night, but because we were so organized, it happened without a problem."

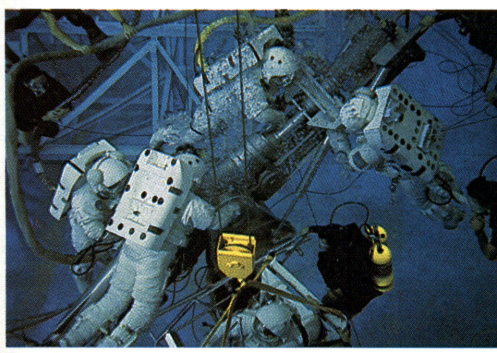
The Badlands portion of the shoot was not without its mishaps, however. The first night's work consisted of a scene in which the members of one shuttle crew pull themselves from the remains of their wrecked ship. Bay details, "We'd created this amazing crash site, using airplane parts trucked in from Arizona, and the first setup was a massive wide shot. Unfortunately though, *nothing* was working that night. Our 100-mile-per-hour fans would start and stop, the steam machines would blow fuses — everything had failed before we even broke for dinner."

The crew returned to again try to film the establishing wide shot. "We were so far back that the actors looked like little dots," Bay describes. "Ben Affleck was the first to be seen climbing out of the wreckage, but as he was walking out, he kept leaning down, as if he was trying to find something on the ground. I radioed to him, 'Ben, what are you doing?' There was no response, because his line was shorted out. He kept reaching out for something on the ground, and it turned out he was looking for a rock so he could smash his helmet's face plate — he couldn't breathe! We had to work out all of these kinks in the suits before Bruce Willis came onto the show; the other actors were sort of like guinea pigs in that process!"

Back to NASA

Granted complete cooperation, *Armageddon* arrived at the Kennedy Space Center ready to utilize the facility. "As the NASA guys describe it, this is the 'world of big toys,'" Bay begins. "And they do have the world's *biggest* toys. The vehicle assembly building — where they service the shuttle before and after each launch — actually has its own weather system. They bent the rules for us, and we got the most cooperation since *Apollo 13*. About the only thing we weren't able to use was the 'Vomit Comet' [zero-gravity training aircraft], because allowing *Apollo 13* to use it broke the rules. The FAA says that it would cost $60 million to retrofit the plane to certify it for civilian use. Even with our budget, that was out of the question."

Shooting at the Kennedy Space Center included adhering to some specific restrictions, since the extent of the Administration's aid always hinged on safety issues. "There were a lot of restrictions in areas where they were doing things like handling solid rocket fuel, which

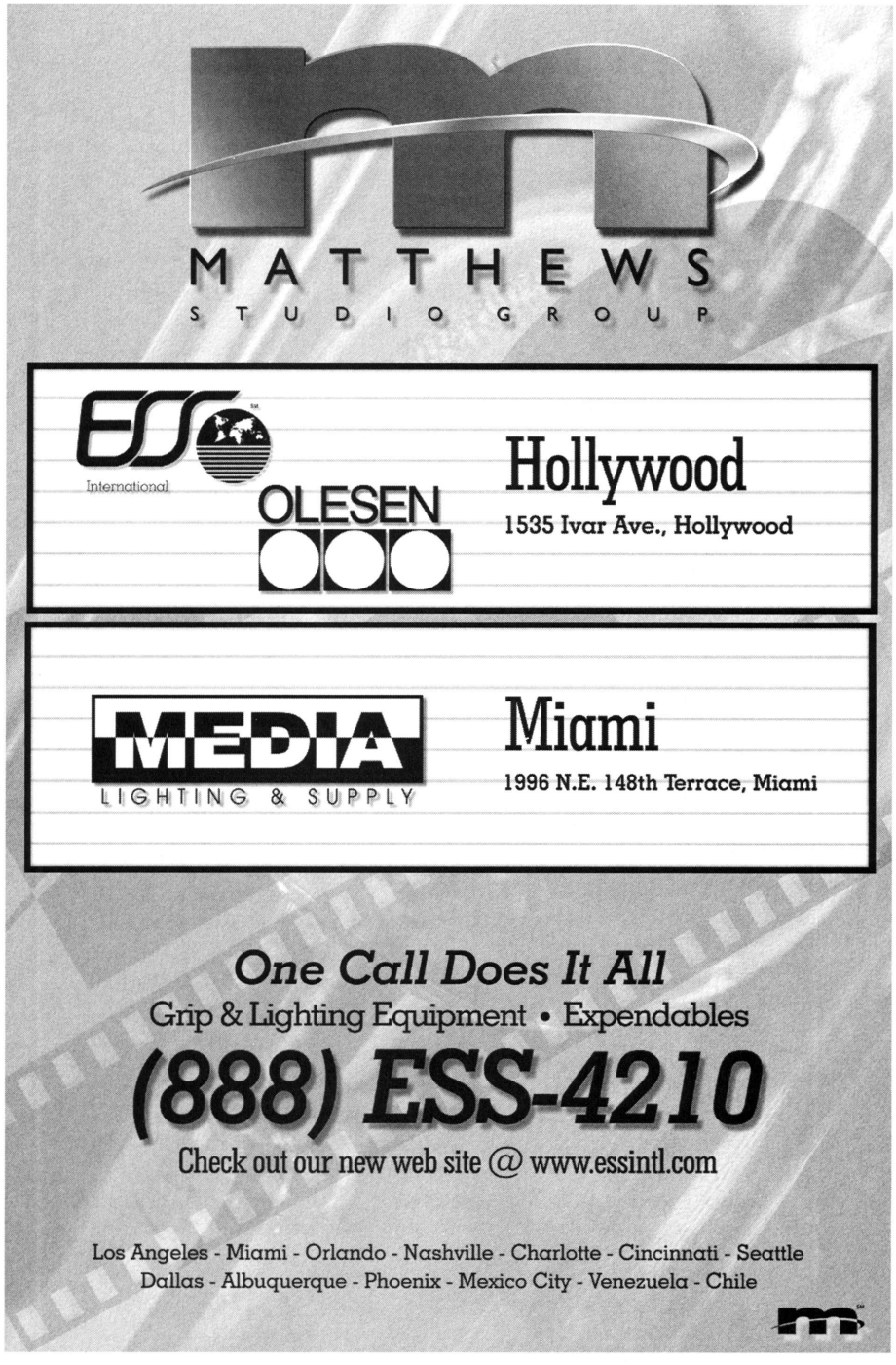


is of course highly flammable," Schwartzman says. "We had to have all of our lighting fixtures approved by NASA. Fortunately for me, our rigging gaffer, Jeff Soderberg, did an extraordinary job of dealing with the NASA officials in such a way that they relaxed a lot of their restrictions. For example, they allowed me to bring some 4K Pars in, which they rated as 'non-explosive' because the fixtures had sealed globes within globes. And they let me use HMI Pars wherever I needed to."

However, the immense size of some of NASA's facilities sometimes left the cinematographer to simply augment the existing lighting, rather than illuminate things as he normally might have done. "In a perfect world, I would have rewired the whole place," Schwartzman describes. "But while I would have loved to do that, we traveled to the Kennedy Space Center to shoot what was there — to capture the reality and scale of the place. Their lighting served as my base ambience, and from there I worked on creating mood and shadow." This included adding pools and highlights, and using fluorescent fixtures to create accents.

Interestingly, NASA was quite curious about many of the cameraman's lighting units. "They asked a lot of questions about my Kino Flos," Schwartzman remembers. "We'd used a lot of Wall-O-Lites in one building, and this guy later came up and said, 'Okay, what are these and where do I get some?' For a moment I thought about telling them that *I* had designed them, but I gave them [Kino Flo company owner] Frieder Hochheim's number instead."

However, lighting was only one of the filmmakers' challenges, as Bay's kinetic cameras demanded constant movement. The director recalls, "While shooting in the vehicle assembly building [where the shuttle is positioned with its massive fuel tank and towering solid rocket boosters], we used a Technocrane [obtained from Panavision Remote Systems] for a specific sequence in which Bruce Willis's character is talking to another guy while walking around the orbiter, with most of the dialogue taking place alongside the wing area. And this was a *real* shuttle. The guy who runs the facility told me, 'I'm putting my career on the line. You can't *touch* this $6 million Kevlar piece [on the spacecraft wing].' It was a heat-resistant panel about four feet long — $6 million! So we had Bruce right there and the Technocrane brought the camera within four inches of this wing surface. Later in the schedule, we shot some scenes at a historic Craftsman-style house in Los Angeles, where they told us, 'You've got to watch the floors!' We told them, 'Listen, we're used to shooting



When Worlds Collide

Bay directs his cast while shooting on the launch pad gantry. "Every single piece of our equipment had to be accounted for while we were shooting on the gantry," the director stresses. "Because if we were to drop something as small as a paper clip — and not be able to find it — NASA would scrub their launch. That's how careful they are. And although they policed us, I think we'd impressed them with our professionalism, and that's why they opened up all the doors and allowed us up there."

around billion-dollar spacecraft, so we'll be fine.'"

Schwartzman adds that his "accent" lighting within the vast vehicle assembly structure included using 80 6K Pars and wheeling in a Musco.

For the sequence in which *Armageddon*'s faux space jocks board their ships, the filmmakers were allowed to shoot on NASA's actual launch gantry, where the shuttle *Endeavor* stood vertically poised on the pad waiting for a take-off scheduled for just a few days later. "There are two big issues of concern at NASA," Schwartzman says, "One is FOD, which stands for Foreign Object Debris, and the other is 'taping-and-tethering' — making sure that everything is connected to something else. While we were on the gantry, NASA was far less concerned about me using my lights than they were about someone dropping a screw near the base of the shuttle. Every piece of camera tape had to be accounted for. If we went up there with 42 pieces of equipment, we had to come down with 42 pieces — or we'd stay up there until we found it. Every scrim was wired to its light so it could only fall three feet. We also couldn't use clothespins to attach gels to lamps because they might spring apart."

Schwartzman reports that NASA did allow him to run cable up the gantry and bring along a couple of 4K HMI Pars and 1200-watt HMI Pars for fill — working less than 100' from the bottom of the "locked-and-loaded" orbiter. "They wouldn't let us bring in a generator, so we tied in with their 110 AC transformers," the cameraman says. "In most cases [at the NASA facilities], I had to provide my own power, but the gantry was a special case."

Adds Bay, "We also shot in the clean-room passageway up there, which leads right to the hatch where the astronauts enter the ship. We hadn't planned it, but while we were on the gantry, someone from NASA asked, 'Do you want to get in there…?' We had just two minutes to get a shot of Bruce Willis and Ben Affleck leaning into the hatchway, but not going inside, so we went with the light we had. Bruce was very funny, whispering, 'Mike, do you have the cameras rolling? I'm going to make a break for it' — as if he were going to jump inside the shuttle! But NASA had some technicians in there to make sure he didn't go too far."

The "firing room" — a control center featuring a set of massive 25'-tall windows looking out onto launch pad 39B — was one area at NASA where Schwartzman did do extensive lighting. The extra illumination was very necessary, given that he was replicating the awesome blast created by a shuttle liftoff. "The firing room is the closest spot to the pad during a real launch," the cameraman details. "Of course, I couldn't get cameras in there when we shot our night launch. But they gave me clearance to work there even though [the *Endeavor*] was really on the pad and ready to go up a few days later. We could shoot in there from 8:30 to 10:30 p.m. — just two hours."

Schwartzman began his lighting earlier that day by replacing NASA's warm-white fluorescents with Kino Flo 3200°K tubes. Outside, 10 Dinos were mounted on 86' Condors and positioned near the main window, along with ten 70,000-watt Lightning Strikes units. "The firing room is located on the fourth floor of the building," he says, "so the top of this window is about 80 feet in the air. To create a moonlight effect, I also ripped in a couple of 18Ks to add some nice modeling on the interior walls. Then, as the guys went through the countdown and got to T minus four seconds, we throttled up eight Dinos on dimmers to simulate the shuttle's engines, which are very warm when compared to the solid rocket boosters. During an actual launch, the shuttle's engines burn for a few seconds, coming up to 100 percent of their capacity. But they're not enough to lift the shuttle; when the boosters kick in, the orbiter instantly shoots upwards for 88 seconds until they burn out. The boosters are so bright that at night they light up half the state of Florida. To create that effect, we instantly brought up the rest of our Dinos and set off all of the Lightning Strikes units. What was great was that we didn't use actors for that scene; the real NASA launch team came in on their own time to do it. They later told me that our launch lighting was very similar to the real thing, but maybe a bit brighter and more dramatic. That was neat."

Not incidentally, NASA safety protocol banished Schwartzman's dimmer controls from the fire room, because its electromagnetic operation might affect the sensitive launch computers. Radio communications were also banned for the same reason; this restriction compelled the cameraman to place his dimmer boards in the basement of nearby building and rely on a string of assistants with loud voices to relay his instructions to the board operator. "Basically, NASA didn't want our lighting control board in the same room with the big red button that sets off the shuttle's engines," he says. "So after I gave a signal, I literally had five people shouting 'OKAY, NOW!' down along this chain to finally tell someone to push a button. We had

to build that communications lag into our lighting cues."

Despite such difficulties, Schwartzman contends, "I think our enthusiasm for the space program was met halfway by the enthusiasm the NASA guys had for filmmaking. The public affairs people initially told us 'You can't do this or that' when we arrived, but the facility heads were suddenly put in charge once we started working, and within about an hour there were no restrictions. They were great, and shooting there was a highlight of my career."

Bay estimates that NASA and the Air Force allowed the production to utilize approximately 19 billion dollars' worth of aircraft and facilities during the *Armageddon* shoot.

The "Pit of Despair"

In addition to the Badlands shoot, portions of the asteroid surface sequences were done with miniatures, while the remainder, primarily the astro-drillers' attempts to bore into the rocky core, were staged over the course of about seven weeks on Stage 2 at Walt Disney Studios in Burbank, California. It was here that *AC*'s editors visited the *Armageddon* crew in mid-January of this year. Construction had begun months earlier, after the stage's 240' x 300' floor had been removed and 30' of soil was excavated to accommodate production designer Michael White's extreme topography. "That gave us about 90 feet of height," Bay describes, "which was great because I like low angles. We then blacked out the perms. Because of the set's bowl-like shape, along with the atmosphere effects we had going, very few sky replacements had to be done in postproduction."

While Schwartzman initially thought of using a bank of 100 synchronized Vari-Lites to add a sense of movement to the set's illumination — lending credence to the idea that the asteroid was spinning through space — the plan proved impractical. Also discussed was a single-source approach like the one cinematographer Gale Tattersall recently used while shooting lunar sequences for *From the Earth to the Moon*. (Ironically, *Armageddon* had originally planned to built their asteroid set in the same Tustin, California blimp hanger utilized by the HBO project, but ultimately could not book the site.) "I later read about how Gale did that in *American Cinematographer*," Schwartzman says, citing the magazine's April 1998 story. "But his approach worked because he had enough room beyond the set to cast an immense

When Worlds Collide

source and get nice sharp shadows. I just didn't have as much room, because our set at Disney was built to the perms."

Echoing his approach in the Badlands, Schwartzman's lighting solution was to once again deploy 12/18Ks and HMI 6K and 4K Pars to create shafts of light cutting through the asteroid's rocky shapes. He offers, "I could have used another 50 feet of throw for the lamps, but there was just no room. Actually, I wish we could have taken our set and actually put it in a larger space where we could drive a Musco around it. That would have given us our single source."

Schwartzman notes that his HMIs were primarily Cinepars supplied by Sun Valley, California-based LTM. "I love burning arcs for daylight exteriors, but I have always been an LTM HMI user," the cameraman testifies. "Their 12/18K lamp is the best instrument of its kind. It puts out more light and has a better spread, and that means I don't need as many fixtures."

The harsh shooting conditions on the asteroid set earned it an appropriately bleak nickname: "The Pit of Despair." Bay credits this moniker to the special effects crew's use of Rice Crispies cereal to help them whip up interstellar storm-fronts. Soaked with water, the mushy foodstuff went moldy, resulting in a foul smell and sinus infections for almost the entire crew. "On top of that, the set was physically debilitating," Bay says. "There were no level surfaces and no spots to be comfortable, so we just couldn't shoot in there over a straight run. We ended up switching out with shooting in the shuttle interior, which we called 'The Womb' since it was relatively nice and calm."

Armageddon's cast members were forced to endure their space suits throughout the entire "Pit" shoot. The helmet design is quite remarkable, featuring a large glass faceplate which curves across approximately 180 degrees of its surface. Bay notes, "We spent about $250,000 designing these helmets in order to provide radio communications and an optically clear glass dome, and to perfect an airflow system that would prevent fogging. The glass dome was actually built by the same company that builds NASA's helmets."

Added to the helmet was a specially built mini-lamp. "I knew Michael would want a blue helmet light," Schwartzman says. "My first thought was that I could use a CTB-gelled MR-16 bulb, but those burn way too hot, so I went to LTM, hoping they could come up with something." Their solution was a tiny 18-watt HMI bulb mounted in an MR-11 fixture, powered by a 12-volt battery built into the back of the lamp housing. "It created a beautiful light, and they made 50 of them for us," the cameraman says, adding that the custom lamps were provided free of charge because the LTM company logo was prominently added to each. "I came to Michael with the idea that in the future, NASA might rely on corporate sponsorship. He replied, 'If it gets me 50 helmet lights for free, I love the idea!' All joking aside, though, LTM really came through for us in the crunch.

"The beauty of this for me was that if I needed to sneak in a 200-watt Par to light some specific detail, I could do it whenever I wanted to because it could be motivated by anybody's helmet lamp. If I'd had to black out every single source I used, we'd *still* be shooting *Armageddon* today."

The space suits weren't just for show, however. The special effects department's vicious artificial tempests showered the cast (and crew) with clouds of smoke and nitrogen gas, hail-like ice and grimy grit, so the protective helmets and padding were literally necessary for survival. Bay remembers, "There were times when 10 guys were operating these 100-mile-per-hour fans,

Shooting in "The Pit of Despair." By doing 3,207 first-unit setups, *Armageddon*'s crew may have may have set a new record for feature film-making. "And they were real setups," Schwartzman attests, "not just A-camera and then B-camera with a longer lens."

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big air movers, and machines shooting huge ice chunks through the air, and I'd hear Bruce Willis on the radio saying, 'Knock it the f—- off with the baseball-sized chunks of ice!' They were just pelting him, and it would hurt like hell if you weren't wearing a space suit."

Mission accomplished

After the main unit finished its work at Disney, Bay and his editing team, led by Mark Goldblatt, concentrated on cutting the picture at producer Jerry Bruckheimer's complex located in Santa Monica. Throughout the show, the editors utilized North Hollywood-based Digital Editing Solutions' digital dailies service and the Avid Film Composer system. DES' direct film-to-digital format transfer produces a high-quality image and facilitates the cutting process by providing ready-to-use 9-gigabyte Avid files complete with scene and take logs. DES simultaneously creates a tape version in whatever format is required, and can even burn off CD-ROM dailies for viewing on desktop or laptop computers.

Although *Armageddon* is constructed from an astonishing number of shots, Bay notes, "We were working in the land of big toys, which called for us to slow the pace down a bit to take it all in and make the film seem more epic." Comparing this style to the amped-up feeling of *The Rock*, he offers, "Conceptually, *The Rock* was a 'B' idea. *Armageddon* is an 'A' idea. *The Rock*'s story boils down to 'a fanatic on an island.' To make it seem more real, I hired classy actors to fill the roles — you *believe* Ed Harris — and gave it a story clock that moved at hyper-speed. That approach wouldn't fit *Armageddon* because of the nature of the story; there's just too much going on."

Long after *Armageddon* wrapped, Bay was still shooting. After screening a 50-minute portion

of the show at the Cannes Film Festival in May, the director photographed extra footage in the gothic French city of San Michele, and then jetted off to Istanbul, Turkey, and the Taj Mahal in India — in order to add a more global context to the disaster saga. (Additional footage depicting the destruction of Shanghai was shot by Janusz Kaminski, ASC.)

Assessing the ordeal of making *Armageddon*, Bay offers, "There's a level of detail in these kinds of films that you take for granted, and I'll never make another space movie again. But the picture also has some really tragic, emotional scenes that have made audiences cry, which is great. The film is a huge combination of visual, physical and dramatic elements, and I think it works."

Despite the various trials he faced on *Armageddon*, Schwartzman contends that this shoot was far easier than *The Rock*. "On that show, we spent the first six weeks on Alcatraz, which was brutal," he describes. "We never recovered, whereas on *Armageddon*, we all knew how to pace ourselves. I was no more exhausted on the last week of the show than I was on the third week." He credits gaffer Andy Ryan, rigging gaffer Jeff Soderberg, key grip Les Tomita, rigging key grip Jake Jones, operator Mitch Amundsen, B-camera/Steadicam operator David Emmerichs, first assistant Richard Mosier, second assistant Thom Lairson, B-camera first assistant Heather Page, B-camera second assistant Charles Katz, loader Dan McFadden and the rest of his crew for making the shoot run smoothly. Schwartzman concludes, "This picture was unique in that we had an idea of how it should look, but discovered things as we went along. That can be hard on the assistant directors, but it makes for exciting filmmaking." ■

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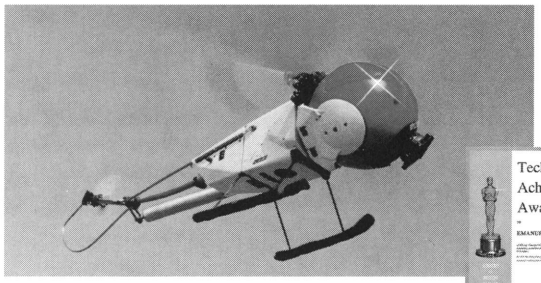

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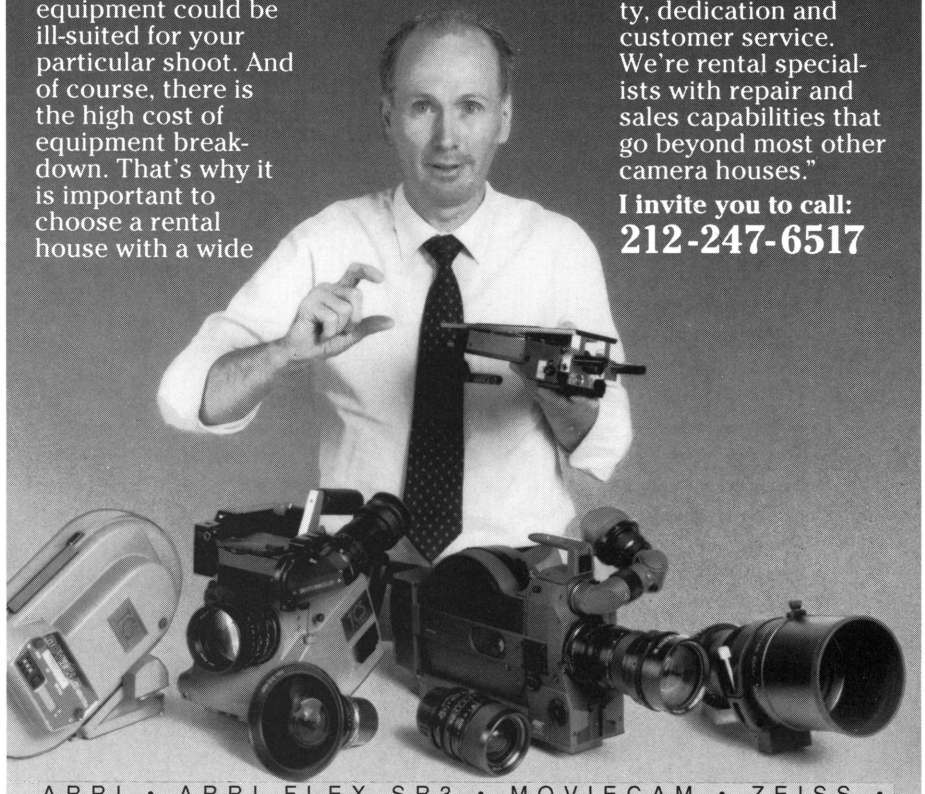

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A bevy of visual effects companies join forces to lend extra urgency and atmosphere to *Armageddon.*

by Ron Magid

Photography by Frank Masi and Philipp Timme

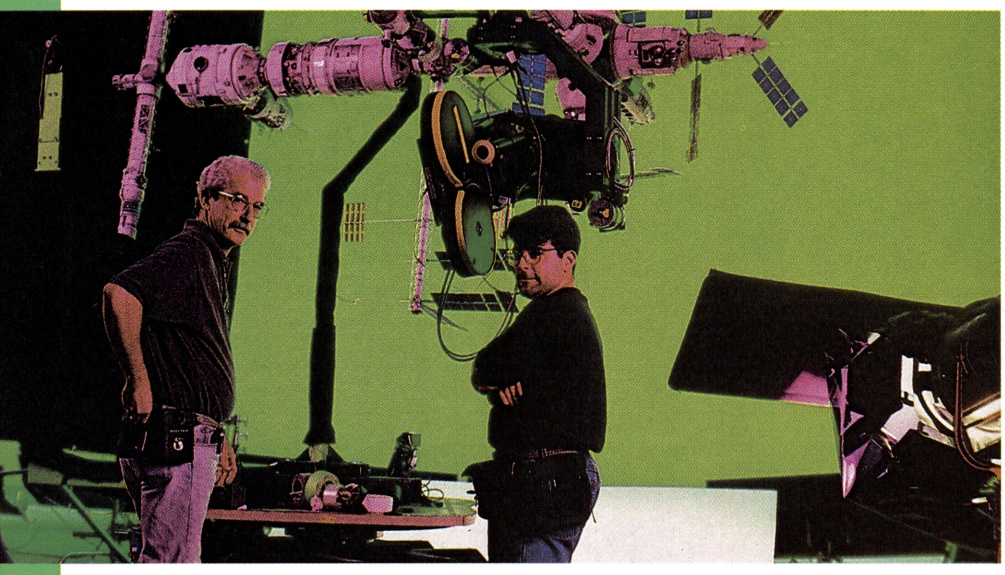
Space Chase

After foiling an all-out terrorist attack in *The Rock,* director Michael Bay and producers Jerry Bruckheimer and Gale Anne Hurd are treating audiences to a close encounter with a different class of mineral mass in the action thriller *Armageddon.* Fifteen visual effects houses (including Dream Quest Images, Computer Film Company, Digital Magic, Pacific Ocean Post, Cinesite, Rainmaker, Voodoo, Editel, 525 Postproduction, Computer Caf, Pacific Title Mirage, VIFX, Tippett Studios and Digital Domain) labored under overall visual effects supervisor Pat McClung to construct more than 270 complex images.

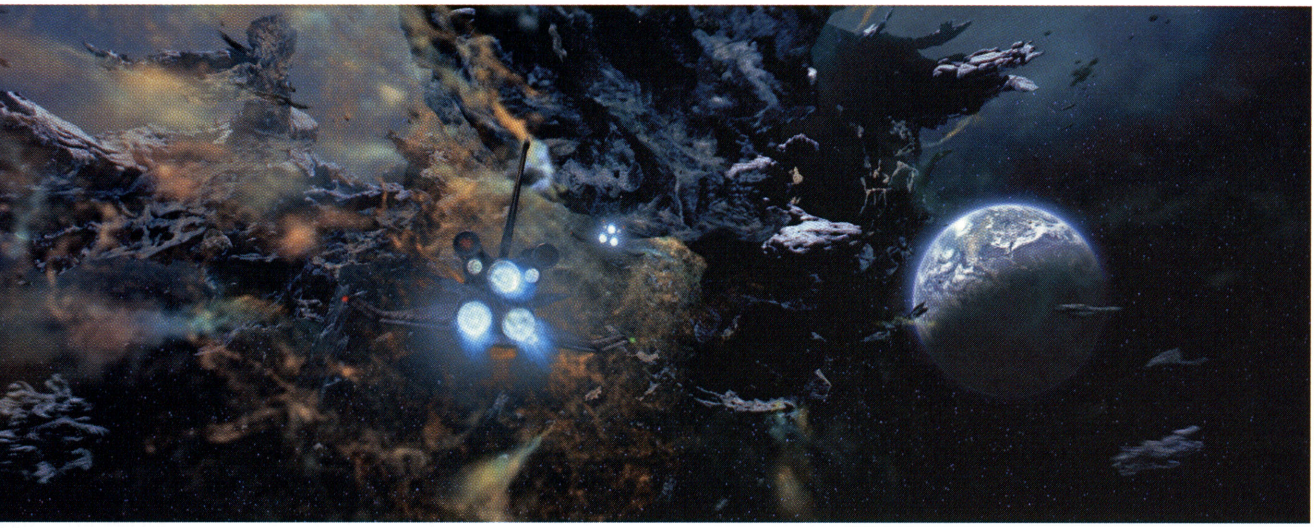
A premier effects modelmaker, McClung got his start working alongside James Cameron at Roger Corman's New World Pictures, building spaceships on the low-budget camp classic *Battle Beyond the Stars,* followed by *The Empire Strikes Back.* He's been a major domo of miniature work on a number of Cameron epics since, including *Aliens.* McClung joined Cameron's Digital Domain at its inception, serving as model department head and overseeing the miniatures for everything from *True Lies* to *Apollo 13.* Then, two years ago, McClung decided to strike out on his own as a visual effects supervisor. "The first film I did was *Sergeant Bilko,* which I never even saw," he admits. "Then I came back to Digital Domain and supervised both *Chain Reaction* and *Dante's Peak.* We did *Dante's Peak* in the shortest period of time anyone has ever done a big effects film. We were trying to beat *Volcano* to the theaters, so we wrapped principal [photography] at the end of October, finished the visual effects on January 17, and opened on February 7! The footage came out pretty good for that period of time, but it was insanity. I'll never do that again — it just about killed me."

Fortunately, McClung didn't have to rush his work on *Armageddon,* since the schedule allowed more than a year for completion of the epic saga's effects. Early on, producer Gale Anne Hurd, an old friend from the early Cameron days, brought McClung in as overall effects supervisor and let him call the shots. "She asked me to set up our own stage and basically do it outside of the big companies," McClung relates.

He quickly set up Bay Effects (named after the film's director) to handle most of *Armageddon*'s elabo-



Photos courtesy of Touchstone Pictures and Dream Quest Images.



Left: The *Freedom* and *Independence* rendezvous with the wayward asteroid threatening Earth. Dream Quest Images' proprietary "Hookah" software was used to render the swirling gases erupting from the immense rock. Opposite: The *Mir*-style Russian space station is shot on the greenscreen stage. Snorkel lenses were often employed for the motion-control model work, as director Michael Bay likes things to be "in your face," says visual effects cameraman Philipp Timme.

rate motion-control and high-speed miniature work in-house, while Dream Quest Images came aboard to create *Armageddon*'s extraterrestrial villain, a Texas-sized asteroid on a collision course with Earth. Since the asteroid part of the show would require heavy use of 3-D CG, and because of Bruckheimer's long-standing relationship with Dream Quest (veterans of *Crimson Tide, The Rock* and *Con Air*), those shots went to DQ. "Their CG department had been radically expanded over the past couple years," says McClung, "I had no idea they had such firepower. There was a big chunk of about 70 asteroid shots that were very intensive in terms of 3-D, miniatures and compositing, and Hoyt Yeatman [DQ's founder and senior visual effects supervisor] came up with Rich Hoover. I didn't know Rich, but he worked out tremendously and helped me out a lot. I got overloaded and he took on some of the work, including some high-speed crashes, which was really a godsend."

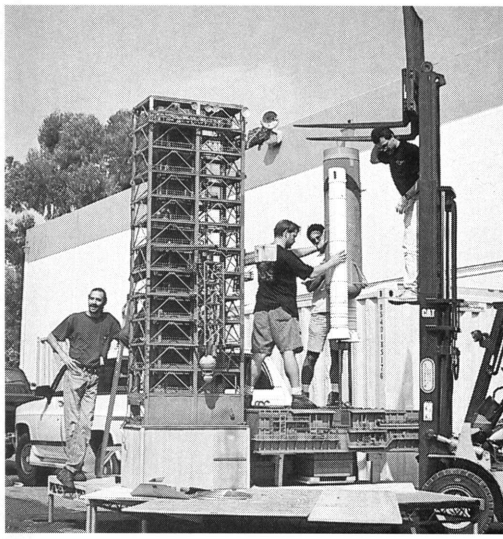
Dream Quest's art department set to work conceptualizing and designing the asteroid, but adding malevolence and purpose to a misshapen boulder careening through space was an exacting task. "We worked very hard to bring out the character of that stone," says Hoover, a star of the company's commercial division who had previously supervised the visual effects work on *Freejack*. "We wanted to make it look as if it was moving even when it was still, and it had to look like a nasty place to go to. It looks very forbidding with huge, long gnarly spikes — very gothic, dark, moody and alive. It's spewing forth this effervescent gas, so there's an aspect of uncertainty about it. It's hot and volatile, and is supposed to be traveling toward Earth at an incredible velocity."

DQ's model shop constructed the gnarled rock as a huge miniature, almost 30' long and roughly 15' in diameter, and then mounted it on a gigantic rotator within their motion-control stage. Hoover offers, "It's not just a dead rock tumbling and rolling end over end — it's actually spiraling. It looks very aerodynamic, as if it's flying with a purpose."

DQ software programmer Jim Callahan wrote a proprietary program, nicknamed "Hookah," to render the millions of tiny phosphorescent particles which make up the asteroid's erupting gases. Later, DQ's animators (working under 3-D supervisor Darin Hollings and 2-D supervisor Marlo Pabon) augmented the miniature with the CG gas, which helped sell the asteroid's vast scale as it hurtles through the heavens. "Since it's spewing so much, it actually has an atmosphere," Hoover reveals. "So when you look across the landscape, it gets milky in the distance, which is not common for a space movie. The problem with outer-space effects is creating depth, but in this case, because the asteroid has its own atmosphere, that diffusion helps make it look just awesome."

While DQ was envisioning the deadly asteroid barreling through space, Bay Effects began churning out signature shots of out-of-this-world annihilation that occur back on Earth: cars sailing through the air, and various landmarks crumbling via high-speed miniature effects. McClung and Philipp Timme (visual effects director of photography on *Dante's Peak* and a veteran of *Independence Day* and *The Postman*) unleashed some initial high-speed havoc caused by falling meteorites which herald the giant asteroid's approach. "Philipp shot some cars blowing down streets, exploding, and flipping end over end," McClung recalls. "Those models were just launched out of air cannons and then digitally composited against a background. We also did a shot where a meteor goes through three buildings and hits the top of the Grand Central Station terminal. This involved a background plate shot in New York and some high-speed miniature buildings exploding, plus

Space Chase



Top: A miniature shuttle booster and gantry are positioned for blastoff. Bottom: A scale version of the famous sculpture overlooking Grand Central Station is ostensibly blasted by meteorites pelting New York City. The high-speed and miniature work on *Armageddon* was photographed in various formats — VistaVision, Super 35 and anamorphic — in order to achieve the best results and a 2.35:1 frame.

a CG streak and a lot of explosion elements, which were all put together at Digital Magic."

Timme not only shot the high-speed elements, but also the original background plate on location in New York prior to principal photography, working alongside director Bay and director of photography John Schwartzman, ASC; this replicated Timme's experience on *ID4*, when he began shooting before the first unit and finished long after they had wrapped. As he had on *The Postman*, Timme shot VistaVision plates because "the first unit was planning to shoot in anamorphic, but we didn't want to use anamorphic for comps if we could help it. It was better to have the large VistaVision negative, which gave us more room to push in, pan-and-scan and move elements around a little bit. I think there's a tendency to go anamorphic again as opposed to Super 35, especially with the Primo lenses from Panavision, so VistaVision will actually be more popular in the years to come."

Timme thus shot VistaVision plates of an intact Manhattan landscape, attempting to anticipate what kind of destruction Bay would ultimately want to see months later. "I did pans and tilts across the sky, trying to follow a meteor that wasn't there as it destroyed the Chrysler Building, another building and, eventually, Grand Central Station," he recalls. "Later, we had to match the model elements that showed the destruction to what we had shot in New York."

But Timme's original pan from the Chrysler Building to the front of Grand Central Station was not encoded; the move had to be hand-tracked so it could be re-created on an exterior greenscreen stage (to match the plate's exterior light), again using a VistaVision camera to ensure that the miniatures would be properly positioned against the background plate. While they had hoped to shoot each building's destruction separately — with a locked-off camera — some elements demanded the use of real-time motion control to lend a proper sense of immediacy to the high-speed devastation. This meant that the VistaVision camera had to run between 100 and 200 frames per second, or four times faster than normal speed — a pace dangerously close not only to the limits of the motion-control head, but to that of the VistaVision equipment as well. "Basically, we got into a realm where there were only one or two

VistaVision cameras available worldwide that could hit those speeds, and Clairmont Cameras had them," Timme says. "The Wilcam 9 goes up to 100 frames per second, and the Wilcam 7 runs up to 200 frames. In terms of actual film speed travel, that's like shooting 400 frames per second of regular 35mm film. Fortunately, we were able to shoot those high-speed shots outside in daylight on 5248, which is how we had shot the background plates in New York."

VistaVision was just one of the countless formats McClung and Timme had to deal with. The others included 35mm spherical, Super 35 and 35mm anamorphic. "We used about 40 different kinds of cameras on *Armageddon*, which is usually not a good thing for visual effects," Timme says. "But in this case, we basically needed a different camera for every job because we had so many different formats and specialized fields — it basically covered the whole range. For motion control, we used the Paramount-Fries VistaVision camera; for high-speed VistaVision, we used the Wilcams; for anamorphic shots, we employed the Fries Mitchells; and spherical work was done with an Arriflex 435. My first A.C., A.J. Raitano, started numbering the cameras — A camera, B camera — and we eventually ended up with a ZZ camera!"

Of course, each format dictated its own stock, adding yet another complication to every decision. "We had three general stocks: Kodak 5248, which we used exclusively for motion-control and all of our VistaVision shots; 5279 for all of the high-speed shots; and 5293 for wherever we needed an ASA of 200," Timme says. "[For greenscreen or bluescreen,] we used the older 5293 stock, which is a really good emulsion. I'd had a bit of trouble with the 5277 Vision 320T stock while doing process work on *Dante's Peak*."

Having laid waste to New York

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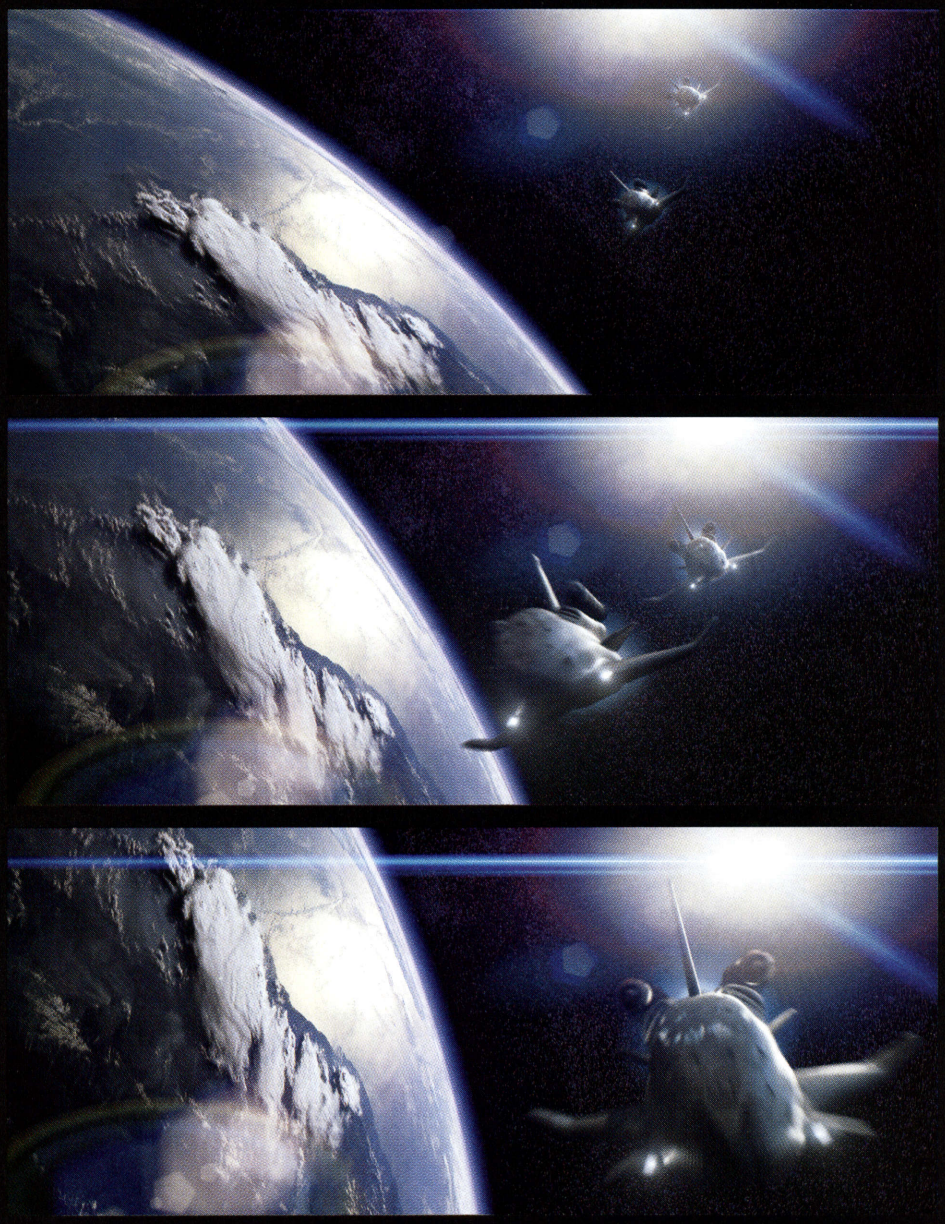

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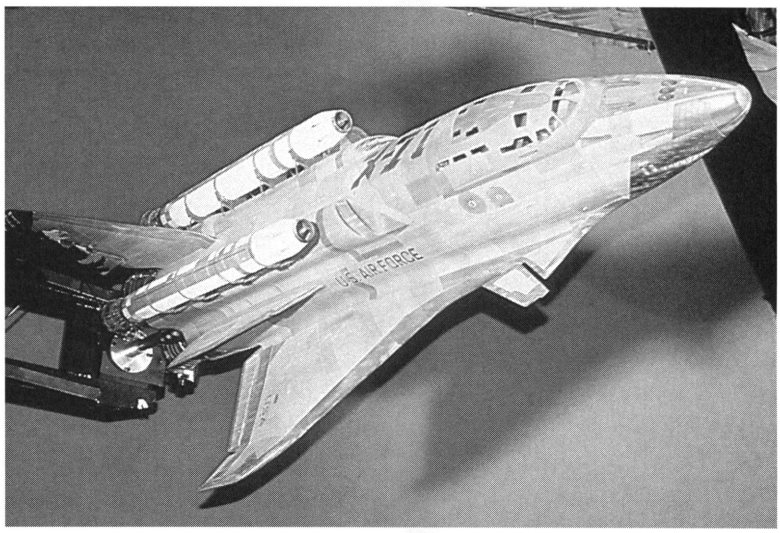
Space Chase

Finishing touches are added to one of Dream Quest's 5' "next-generation" space shuttles. The models — which combined a "militaristic" look with the real-life orbiter design, were fabricated from epoxy and fiberglass and featured a six-point mount for motion-control shooting.

City, McClung and company dealt with several differently-sized miniatures of the two "next generation" space shuttles which are sent to rendezvous with the asteroid and obliterate the object before it reaches Earth. The *Independence* and the *Freedom* shuttles represent NASA's "duality" concept — send up two of everything in case one fails — taken to a new extreme. The military shuttles have the same configuration as current NASA ships, but their more detailed design is sleeker and more streamlined; the movie shuttles also feature additional booster engines and expanded cargo bays capable of carrying large vehicles. The miniatures were supervised by master model builder Alan Faucher, who served as McClung's crew chief at Digital Domain on *True Lies, Apollo 13* and *Dante's Peak*. "Alan built four 5'-long space shuttles — two for us and two for Dream Quest, which did the same kinds of shots," McClung recalls. "He also built a 1/12-scale, 10'-long version for our high-speed shots of one of the shuttles crash-landing on the asteroid."

Bay Effects executed a series of *Apollo 13*-style shots at NASA's shuttle launchpad, matching their miniatures to full-scale, live-action footage involving the space agency's specialized equipment and facilities. In creating the illusion that the redesigned model shuttle was hanging in the vehicle assembly building, the building was captured with a Panavision pan-tilt head which recorded the move; McClung's motion-control team then applied that location data to the model and locked it in. Similarly, NASA rolled out a crawler (the enormous tracked vehicle that takes the shuttle from the vehicle assembly building to the launch pad) at night, and Bay Effects added in the miniature shuttle.

However, the most spectacular shots were reserved for the launch itself, wherein Bay Effects matchmoved their sleek 5' miniature shuttles (which were totally redesigned except for the main booster engines) to real footage of actual space-shuttle boosters firing on the launch pad. Director of photography John Schwartzman mounted cameras in the pad's large fireproof housings and shot 35mm anamorphic footage of NASA's shuttle blasting off. Bay Effects then digitally doubled everything to produce the illusion of twin shuttles taking off from side-by-side launch pads. Of course, getting the miniature elements to line up with the moving production cameras and the escape-velocity shuttles was quite a job, in and of itself, on these 10 extremely complex and critical shots. Explains McClung, "We could get the gross match-move very quickly, but then we had to look back at the film and tweak everything to make sure the perspective was correct. We had a video playback and compositing system on stage. Our motion-control camera had a videotap so that we could see what we were doing in terms of lining things up with the background plate, and then we would go look at the film and do another test. Once we worked out our motion-control match-move, Philipp would shoot several passes on the shuttlecraft models: one pass for the miniature lights representing the big klieg spotlights on the ground in the background plate; a really hot pass that was burnt-out from where the source of the engines would be; and a separate pass to create a very bright glow over the entire shuttle as it lifted off."

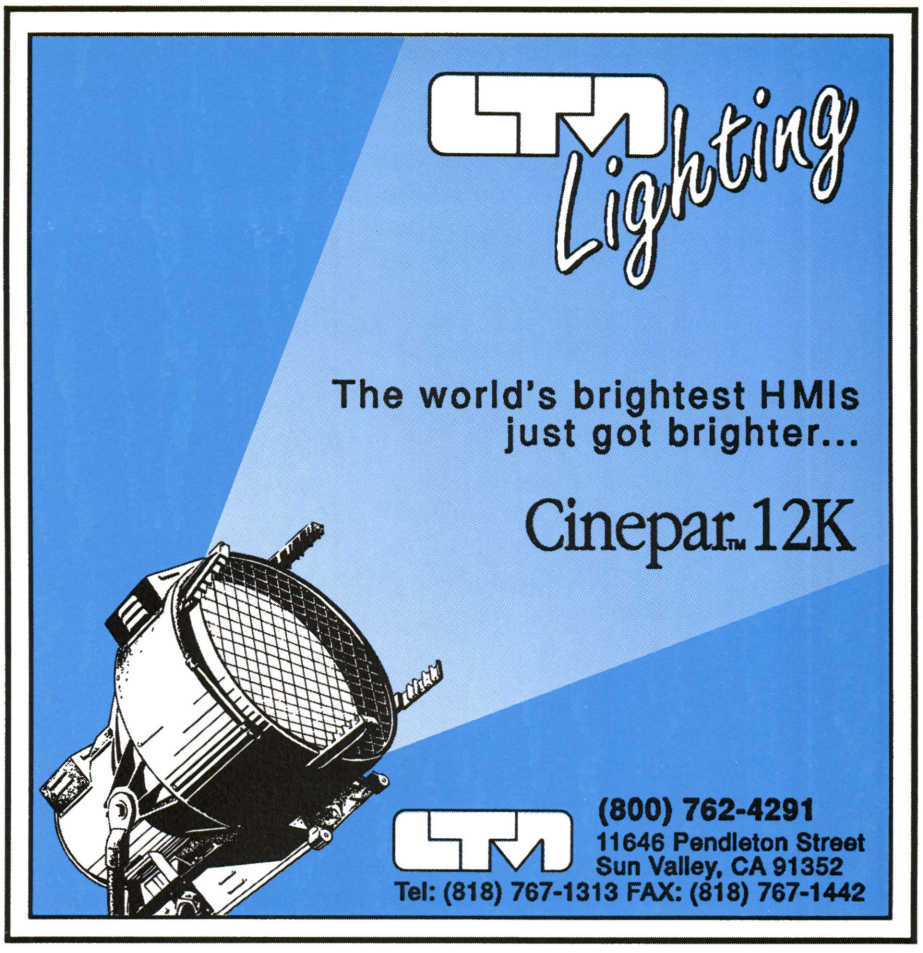


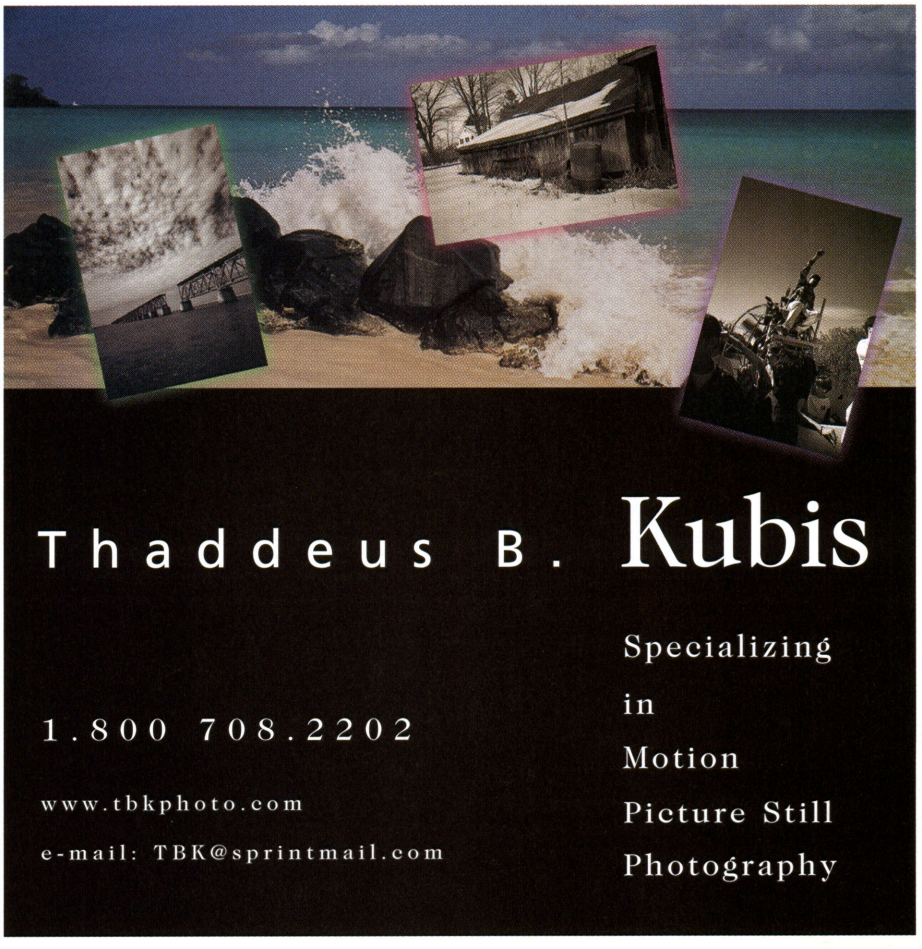
"I did the beauty pass with the backlight and fill all in one," Timme adds. "I only split that up when Pat thought he would have to deal with them later in post, because shooting VistaVision gave us a very shallow depth of field, and therefore very long exposures. Fortunately, I had a very good first A.C. who was able to let me shoot at around an f16, so we were able to keep the passes down to a reasonable length. We didn't have a pass that was longer than 40 minutes. On top of greenscreen, practical light and beauty passes, I did what I called a reference pass — basically a front-

lit matte against black — in order to let postproduction see if any part of the model had too much greenscreen wrap around it. The front-lit pass not only told us where the problems were occurring, it could also be used as a high-contrast matte.

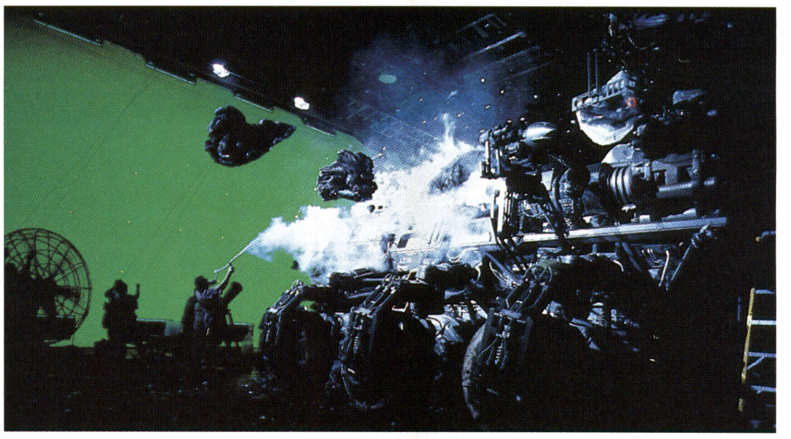
"In these background plates, we slipped the timing between the passes to get it exactly the way we wanted when we were compositing our match-moved motion-control shuttle over the real shuttle. So when you see the shuttles lift off, it's our slicker and more streamlined miniatures stuck to the real boosters. We created some amazing launch footage. There's a shot like the one in *Apollo 13* — we're looking at the motion-control shuttles coming up, and the whole ground plane below is a 3-D matte painting with 3-D gases for the big plume that's left on the ground. The engine plumes trailing from the shuttles are also 3-D."

Once *Armageddon*'s setting shifted to outer space, director Bay wanted to bring the shuttles, and the various stellar objects they encounter — including the Hubble space telescope and a *Mir*-like Russian space station — to cruise within inches of the audience and the motion-control cameras, which necessitated the rather unconventional use of a snorkel lens. Snorkels are invariably deployed when the camera cannot come close enough to an intricate model to fly through the really tight spaces. According to Timme, however, the snorkel was used "so we could basically skim down the side of the shuttle. We didn't think of that in the beginning, but it became clear that we would need something to get close to the models because Michael Bay likes to have things in your face. It was a big challenge to shoot with a snorkel lens, because there aren't a lot of them built for VistaVision cameras. It was a fun to figure that out and get it done with a VistaVision camera and a big motion-control rig, even when we were trying to fly by





Space Chase



While the model and visual effects units handled shooting the majority of the film's effects shots, the first unit did extensive green-screen work. Here, they film with a full-scale six-wheeled Armadillo for a rock-storm sequence set on the asteroid. The Armadillos were depicted with a mixture of miniature and actual vehicles, respectively traversing extensive table-top landscapes and the Badlands of South Dakota.

within a quarter of an inch [of the models]. I know that Chris Dawson, the mo-co operator, had a lot of moments when he was sweating blood because the camera was so close."

After the explosion of the anonymous Russian space station, Dream Quest Images handled the rollercoaster "fly moon sequence," in which the *Independence* and the *Freedom* shuttles slingshot around the moon to gain momentum and match pace with the deadly asteroid. "It's a 9-minute sequence with 35 really difficult shots, many of which are 10 seconds long," says DQ visual effects supervisor Richard Hoover. "The camera is always moving; we had not one lockoff, which made our job harder but made every shot much more dynamic. We did very intense fully-digital animatics to work out the choreography of the entire sequence with Michael. We explored every angle and every cool idea. Then we could apply the motion from the animatics to our miniature shuttles, double-expose them over the backgrounds, and just send tapes down to Michael while he was shooting first unit. Michael would make subtle changes based on having the real shuttles in the shot, especially in terms of how close they were to camera. We always ended up incredibly close to the shuttles."

Unlike Bay Effects, which strictly used miniature shuttles, DQ employed miniature and CG shuttles which were virtually indistinguishable from one another. Hoover explains, "That's because Mark Siegel texture-mapped all of the shuttles using photographs of the actual miniatures shot with the same emulsion we used to shoot our motion-control models. Mark made the surfaces dimensional so that when the CG shuttles were illuminated, they cast shadows and highlights, as they would in reality. We can fly right up to them and they look just like the miniature, and we've got shots that start with the whole bottom of a CG shuttle almost filling the frame before we pull away."

Finding the appropriate tone for the "fly moon sequence" was an exercise in dramatic balance. "Early on, I worked with Michael Bay on the emotional ups-and-downs of the sequence," Hoover says. "The astronauts have only an hour to catch the asteroid, so the clock's ticking, but there's a little quiet time before they reach the asteroid, and Michael wanted to see some beautiful scenes with the moon, the stars and the shuttles."

Toward that end, DQ's Sean Jenkins wrote original software to render stars and fashion the universe from the Earth's point of view. "Stars are always a challenge on any movie," Hoover opines. "They're difficult to render because they don't motion-blur the right way, or they flicker or turn weird colors because they're just really tiny pixels on the film. This program actually works from the existing galaxy and models stars to look the way they really are, so wherever you look — 360 degrees up, down or sideways — you see what you would really see."

The moon was also a digital creation (based on NASA photos) with fully dimensional topography. When the shuttles slingshot around Earth's nearest neighbor, the twin ships skim some 500' over the lunar surface, leaving lots of landscape texture whipping by beneath them.

As the camera comes around the edge of the moon, the asteroid makes its first appearance from the shuttles' POV. "It's flying away from the shuttles and heading straight for the Earth, which was also a CG-manipulated object based on NASA photographs," Hoover says. "The shuttles then enter the frame and gain very slowly on the asteroid, which is pulling away from camera. The asteroid is about 1/4 or 1/3 the size of the moon, which is approximately 3,000 miles in diameter, so the shuttles are just dots against it."

In overtaking the asteroid, the shuttles penetrate its tail, which is covered with hundred-mile-long, gnarled, coral-like spikes comprising nearly 50 percent of its length. Searching for their predetermined landing spot, the shuttles maneuver through the spikes themselves — a literal minefield of ice and rock fragments. "It's a nasty place once you get into it," Hoover promises. "The journey inside is a definite ride. People will be rocking in their seats."

DQ used their 30' asteroid miniature for the shuttles' initial approach to the tail, then segued to a close-up section of a half-dozen spikes (measuring 35' to 40' long) augmented with various motion-control passes to add atmosphere and shafts of "God-light." Later, multitudes of rocks and gas elements hurtling through space were added digitally. "It would have been very time-consuming to program all of

the rocks one at a time via motion-control, and difficult to maneuver our shuttles out of the way using random high-speed techniques," Hoover explains. "We used CG rocks instead because we wanted them to hit each other and change direction. We could also attach gas to them so that these big rocks would be venting from where they broke off, and create some spectacular choreography very quickly.

"When the shuttles had to do some maneuvering, we were careful not to let them get too crazy," Hoover adds. "They still use little thrusters that help them bank, but if we strictly followed reality, they'd just be sailing along, which would look boring. Instead, we stretched and made them fly a bit like airplanes. As they maneuver through this minefield, their wings pitch and tilt, which made the shots more interesting."

Once the twin shuttles clear the largest spikes, they begin their descent to a landing area. As the ships veer towards the asteroid, its detail and intricacy increases, culminating in a huge 80' long by 25' wide tabletop miniature of the moving mineral mass. The tubular landscape, which supposedly measures some 20 miles across, is covered with fissures, deep chasms, spires and spikes. Says Hoover, "It's something like looking across the L.A. basin on a clear day, with that kind of spatial volume — a bit more on a human level, but still pretty vast."

The model was mounted on risers about 4' off the floor and shot on DQ's famed gantry motion-control stage, originally constructed for the company's Oscar-winning effects work on *The Abyss*. The camera was mounted on a rig that ran on a track in the ceiling, enabling DQ's director of miniature photography, Scott Beattie, to create shots that flew through the bizarre landscape. "Sometimes we had to cut away some of the overhead spikes so the camera could continue on the shot,"

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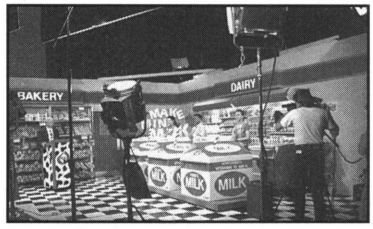

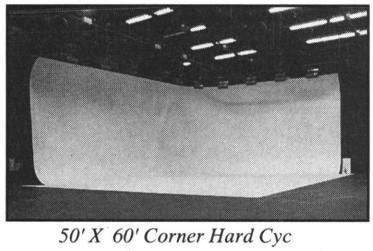

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Hoover recalls. "It looked great when we watched the model onscreen in dailies. But when we put the shuttles and the gases in, the scale suddenly changed tenfold, and it looked so much vaster. It gets rather violent and the gas is moving very fast, creating currents that blow the shuttles around."

One of these whipping astral gusts causes the *Independence* to be hit by a meteor that destroys an engine, causing the craft to plummet in a spiraling crash. This high-speed sequence was overseen by Hoover at Bay Effects' stage in Culver City. He notes, "Pat was really involved in the design of the crash, but it turned out that he had too many things going on, so I came in to help out on that. The landscape filled the stage, which was about 110' long by about 80' wide. There was a huge ceiling rig that flew the 1/12-scale shuttle model, which was suspended from wires. That model was about 10' long, very detailed, with working landing gear and cockpit lights, mannequins in the cockpit, wingtip lights, engine lights in the rear thrusters and real interactive smoke spewing from the engine. It was also rigged with a huge amount of timed pyro events for the crash itself. We might have had 50 charges going off, which was an astronomical undertaking for the pyro crew headed by Richard Stutzman and Dave Green. We had at least six cameras running anywhere from 48fps to 72fps, depending on the lens length — I tended to go a little faster on the longer lenses. We did a lot of cool shots where the cameras were positioned in great places. I hid Eyemos inside of rock formations that the shuttle would crash into — I hit at least three or four cameras, but we got a lot of great action."

McClung and Timme handled the dramatic landing of the *Freedom* using the same wire rig over a huge model landscape representing a field of strange icicles. "We flew the 10' shuttle model on an overhead track and crashed it into a huge terrain model," McClung says. "It does a hard landing in this field of icicles and just slides and slides, finally coming to a halt — that was all done in-camera. Then Cinesite did some digital rig and ceiling removal, and actually handled a lot of paint-outs to remove the permanents from the stage."

After the *Freedom* lands, it releases one of the two Armadillos (six-wheeled all-terrain vehicles) that head for the site where warheads will be planted to decimate the asteroid. While a full-scale vehicle measuring some 20' long was shot by the first unit with the actors on location in South Dakota, model supervisor Alan Faucher built a 1/4-scale miniature which could be fully radio-controlled for use in high-speed effects, then rerigged for motion control; the radio-controlled version was actually filmed in the South Dakota location for wider shots of the Armadillos' journey.

Shooting the 1/4-scale radio-controlled Armadillo high-speed offered a number of obstacles for cinematographer Philipp Timme, who had to generate mood lighting and practical gas swirling over the miniature landscape while filming at faster-than-normal framerates. Timme explains, "The whole asteroid sequence was very dark, very backlit, with 'God-light' — these fingers of light — coming down. That was actually somewhat tricky. The stage was only 24' tall, and it was hard to create that look when the set reached three-quarters of the way up to the ceiling, because you need the distance to put the lights up. We were able to achieve most of the shots in-camera by splitting the God-lights up into a lot of sources, mostly Pars — everything from 6Ks down to Arri Pocket Pars. We tried to make them all look like one big source that was very far away by letting every single Par create its own beam; we then broke that up with setpieces placed in front of them, which is very similar to what John Schwartzman did on the full-sized asteroid set on Disney's Stage 2."

Then there was the ambient atmosphere, which was created by smoking the set — a strategy that became nearly impossible in this case since the smoke appeared to be swirling around too rapidly. "Fortunately, our stage effects crew was very good at creating a very static, general atmosphere," Timme says. "Since the asteroid was supposed to have this constantly windy look, we blew small puffs of smoke through the set with a lot of fans and air movers, which helped create the feeling of speed against the static backdrop of atmospheric haze. We also had little practical steam vents that were supposed to be geysers on the surface, which dissipated very fast. At high speed, the little puffs of smoke blowing through the asteroid looked like gale-force winds and made the environment more hostile — it had a very cool look."

McClung pulled in some high-powered help to complete certain outstanding effects sequences for *Armageddon*'s climax. Master animator Phil Tippett's company, Tippett Studios, handled 21 shots for a sequence involving a squall of boulders and rocks that blows in as the astronauts are drilling into the asteroid's surface. After DQ successfully dispatched the villainous asteroid via miniatures and CG, Digital Domain's Rob Legato, fresh off his Oscar-winning triumph on *Titanic*, agreed to supervise a very complicated shot of the meteor hitting Shanghai, which involved high-speed miniature work, photo cutouts and CG animation. Meanwhile, McClung led Bay Effects' effort to finish the shots of the *Freedom*'s triumphant return to Earth. ■

ON FILM

Michael Bay
John Schwartzman, ASC

"Michael and I have an unspoken understanding about creating certain looks. We discussed the broad strokes for *Armageddon*, but the most interesting images weren't planned. They were accidents we saw and risks we took. That's how you catch lightning in a bottle. Cinematography is a modern form of alchemy. It's not about equipment and techniques. It's about understanding light and what it says about a scene. This film is a visceral experience. The audience feels the energy of the asteroid and senses the danger of being detached from Earth in cold, black space. We wanted sharp, contrasty, richly saturated images that jump off the screen."—***John Schwartzman, ASC***

"In *Armageddon* everything goes wrong and the future of mankind is at stake. It needs to be epic in scale to be credible. We shot things no one had ever seen before except in our minds' eyes. John's exposures were perfect, and that gave us the freedom to take risks."—***Michael Bay***

Armageddon was shot and printed on Kodak motion picture film.

Director Michael Bay was 12 and Cinematographer John Schwartzman, ASC was 16 when they met. They have collaborated on some 200 TV commercials and music videos. *Armageddon* is their second narrative film together. *The Rock* was the first.

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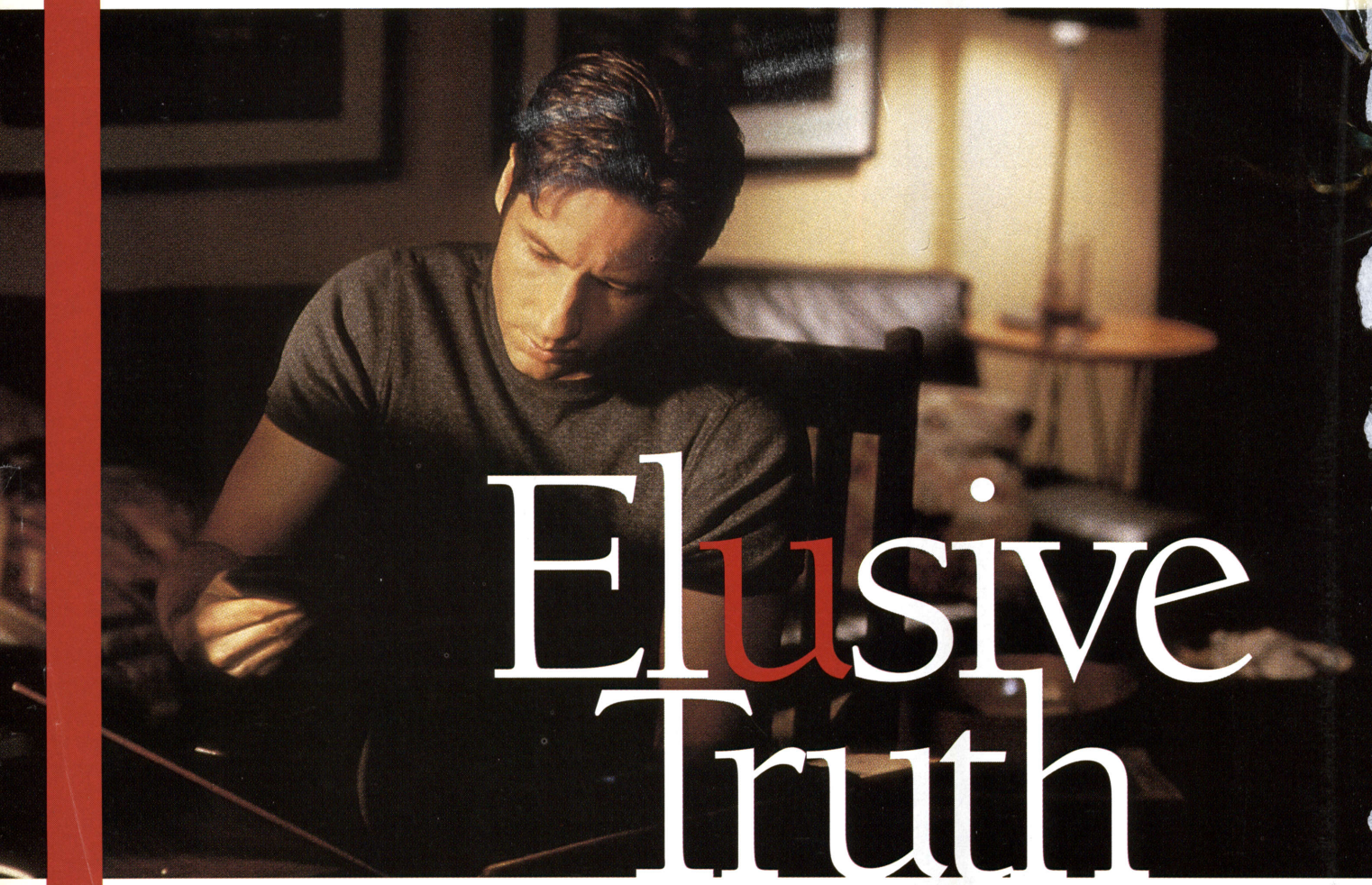


Elusive Truth

As legions of fans obsess over every rumor, executive producer Chris Carter, director Rob Bowman and cinematographer Ward Russell bring *The X-Files* to the big screen.

by Christopher Probst

Photography by Merrick Morton

Just five short television seasons ago, few could have predicted the enormous success that the paranoia-fueled paranormal series *The X-Files* would enjoy. The show's protagonists, FBI special agents Fox Mulder (David Duchovny) and Dana Scully (Gillian Anderson), have become national icons, and legions of die-hard fans regularly dissect the show's every nuance on the Internet.

Meanwhile, the program's creative team has enjoyed a steady stream of awards and critical accolades for their weekly efforts. *The X-Files* has earned two Golden Globe Awards -- along with two Emmy nominations -- for Best Drama, as well as a Peabody Award for Excellence in Broadcasting. Longtime producer/director Rob Bowman has received two Golden Globes for his producing efforts, and has helmed more entries in the series than anyone else, with 23 episodes bearing his distinctive visual stamp. The show's creator, Chris Carter, has earned Emmy, Writer's Guild and Director's Guild nominations for his multi-hyphenate involvement with the show. Additionally, cinematographer John Bartley, ASC, CSC's contributions to the first three seasons of the show (see *AC* June 1995) resulted in three consecutive ASC Award nominations, as well as Emmy acknowledgement.

Given this high level of success, a feature film version of the series was inevitable. Indeed, Carter sowed the seeds for this expansion in Bowman's mind during the show's third season. "I came onto *The X-*

Photos courtesy of 20th Century Fox.

Files during the first season because I was looking for a change of direction in my career," relates Bowman, who got his start doing insert work at Stephen J. Cannell Productions in the early Eighties, and later helmed the sports-flavored teen film *Airborne*. "Fortunately, I was able to find my way onto one episode of *The X-Files*, and was then invited to do another during the second season. After that, I was made a producer, and therein began the marriage — and hundreds of conversations — with Chris Carter, [executive producer] Bob Goodwin and [then director of photography] John Bartley. We wanted to explore and expand the mystery and creepiness that gives the show its signature look."

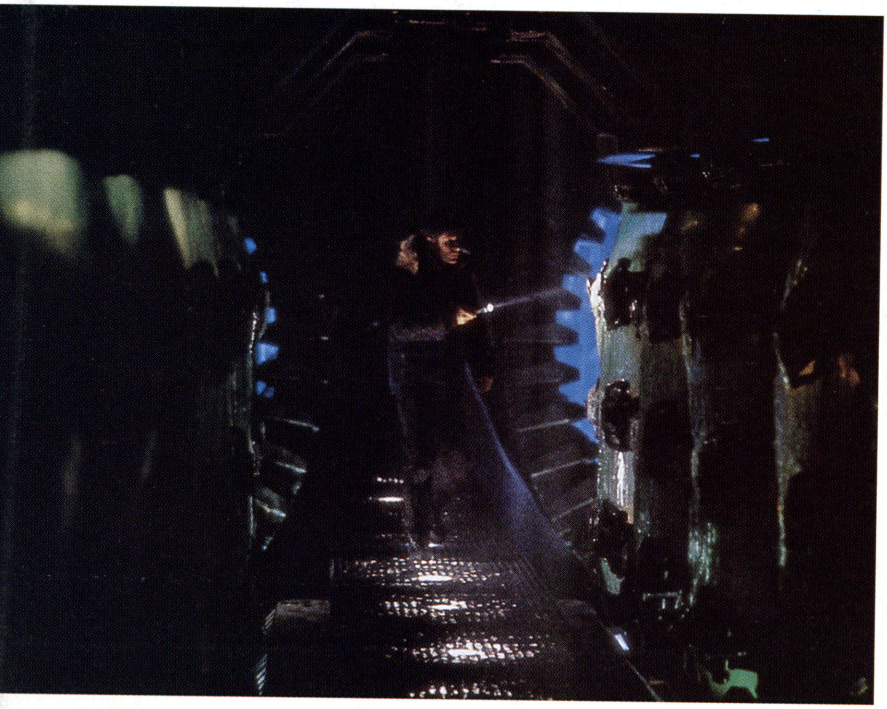
Of course, making the jump to the silver screen is always a huge risk for any series. Television shows don't always translate to the larger proscenium, and the stakes are raised further when a fanatical fan base is factored into the mix. Well aware of these pressures, Carter opted to hire his trusted collaborator to helm the first *X-Files* feature. Although many top Hollywood directors expressed an avid interest in the project, Carter knew that he wanted Bowman to craft the large-screen offshoot, which was cryptically code-named *Blackwood* during production and later subheaded *Fight the Future*. "Rob was totally committed to do this project, and I didn't want to go with some 'feature director' who didn't know the show," Carter explains. "I wanted someone with whom I had a shorthand, who was collaborative and yet had very strong ideas and a strong sense of storytelling with the camera."

Designed as a continuation of several ongoing subplots and mythologies set up in the series, the film directly ties into the fifth season's cliffhanger episode. "On the series," Carter expounds, "we've been imploding the narrative elements. Just when you think you've reached the top of the sand pit, you fall back in, because what we've been telling you is true is no longer true. In the film, however, we really couldn't do that. It needed to be much more of an explosion of narrative elements. We had to develop certain [plot elements], and have a very clear beginning, middle and end. My primary concern in translating the show to the big screen was to avoid sacrificing any of the series' signature mood — which is now *quite* set — and create an event worthy of the big screen that didn't sacrifice a sixth season."

Carter's concerns factored into the production's decision not to shoot the film in the series' established Canadian stomping grounds. Instead, the production set up shop in Los Angeles and utilized locations in downtown L.A., Bakersfield, Santa Clarita and Canyon Country, as well as on stages at 20th Century Fox. Additionally, the larger scope of the feature prompted the filmmakers to bring aboard key production people with large-scale production experience, including director of photography Ward T. Russell.

"The selection of a cinematographer was an incredibly difficult and frustrating process," reveals Bowman. "Since we started our prep so late, a lot of top feature cinematographers had already signed on to do their summer projects. I then came across Ward Russell's name. Ward had shot *Days of Thunder* and *The Last Boy Scout* for [director] Tony Scott, and had also worked as a gaffer with another of Tony Scott's cameramen, Jeffery Kimble [ASC, on *Top Gun*, *Beverly Hills Cop II* and *Revenge*]. With Ward, I had a director of photography who knew how to create a signature look for the project, who had worked with directors and cinematographers I respect, and whose style I felt would fit into the fabric of *The X-Files*."

The filmmakers elected to photograph the film in the 2.35:1 Super 35 format with Panavision cameras, on Eastman Kodak Vision 500T 5279 and EXR 5293 stocks. Explains Russell, "My initial concern [about the Super 35 format] was that the film took place almost entirely at night at very large locations, and on



Opposite: Darkness encroaches on FBI special agent Fox Mulder (David Duchovny) as he reviews evidence in his apartment. The set was re-created on stage at Fox to mirror its Canadian predecessor. "The art department on the film was able to spend a little more money and decorate their sets a bit nicer than the series could," states cinematographer Ward Russell. "They were able to fine-tune the sets for closer scrutiny on the big screen." Left: Mulder enters the icy alien ship, with his flashlight serving as the lone observable practical source amid the sepulchral environment.

Elusive Truth

Federal agent Dana Scully (Gillian Anderson) is deposed by skeptical FBI brass. Shot on the abandoned 26th floor of the Unical building in downtown Los Angeles, these scenes were primarily illuminated by six 20Ks aimed through faux windows created by the art department and covered in 1000H paper, wrapping soft but directional light around the actors.

stage with large, dark sets. I knew I would need as much exposure as I could get, so the Vision 500T stock became a valuable tool. I used it almost exclusively on the film, although I did use 5293 for the few day exteriors."

Assessing the difference between Super 35 and the 1.33:1 television frame, Carter offers, "It's interesting what a 2.35:1 composition does to dramatic weight. Things that you're used to having to force on television -- like a two- or three-shot -- are standard on the feature screen, which carries a much broader dramatic image. Then when you get into a close-up, it has a totally different impact — although I did feel that some scenes played better close than they did in the distance, because close shots put us more into the character's stories. Rob and Ward both have such a good sense of composition that I was actually quite amazed at the fluidity and lack of on-set discussion about composition and lens sizes."

"It's always interesting when you're working with a new director," adds Russell. "You're trying to figure out what the other person wants, yet you're never sure if what they're saying is what they mean. It takes working with that person to understand where their head really is and where to go with it. I'm used to working with directors who are very visually oriented, so I was quite happy to discover that Rob has a very strong visual sense. I find that my work gets that much better when I have a director who has an idea of what he wants and understands what my contribution is. Before going onto each set, we had a lot of discussions concerning the lighting. He's very conscious of light and understands how its direction and mood works; when we went into a scene, we were able to talk about the light source, and we almost always agreed on the best angles from which to show the set. Some directors don't even think about the set; all they consider is the actors, the words and how they go together. That method is the most difficult way to work in terms of lighting because once the director has staged the scene, you then have to figure out how to light the given set to the way he's staged the action. It's much easier -- and usually more visually interesting -- if the director understands the set and the angles that will be the most visual, and then encourages the actors to work within that environment."

Expanding upon this theme, Bowman submits, "The fundamental language I refer to in staging is: where are the triangles in the shot, and where are the three planes of depth — the foreground, middleground and background? Then I have to consider the look I want to achieve, the time I have, and the actors' blocking in relation to those [other] factors. I look for where my light source is coming from — which I may want to be cross- or backlight — and ask, 'How can I say something about the character or scene with simple staging and the right camera move without that becoming the star of the scene?' I've done projects in the past where an image we've created becomes more about how it looks than what's happening on a story or character level. Ultimately, in those cases, you fall short in a narrative sense, because you've aimed for the wrong goal."

"[Blocking a scene for the best visual angles] really is the best way of working," enthuses Russell. "Once we get to a set, give it to me for an hour so that I can rough in some source lighting and *then* bring the actors in and stage the scene. If they don't naturally gravitate toward the light we want, then the director can encourage them to do that. That way, you don't have to fight to create a good look. Every set usually has its own look to start with, so if you utilize what you already have, it's then just a matter of adding a few final touches before you're ready to shoot. I've found that if you're shooting a certain scene and nothing is working right, it's usually because the camera is in the wrong spot. If you get the camera in the right spot in relation to the actors and the set, it all just falls into place."

In designing the look for the film, Bowman and Russell discussed which aspects of the series' photography would be maintained and which would be reinterpreted for the added scope that the larger screen offered. "*The X-Files* is unique in that most films don't have five years of previous

material that you have to relate to," attests Russell. "Usually, you just go and create what you want to create, as you want to create it. Here, we had to confront a series which has award-winning cinematography. We couldn't totally ignore that, so we had to consider the elements that people really associate with *The X-Files*' look. Of course, one word instantly comes to mind: dark! So darkness became an element that I latched onto as a theme that I could carry throughout the movie.

"The techniques we used were an extension of what John Bartley had done — using vast areas of darkness as compositional elements — and Rob always encouraged me to keep this dark element in every frame. Even in scenes that were brightly lit, I tried to bring a sense of darkness to them that made them somewhat unreal, without making it jump out at you. For example, if we had two people out in the middle of a flat plane in a day exterior, I'd put large blacks above them to create a negative fill and place them almost in shadow. I tried not to do that to the point where you'd think they were standing in a shadow; instead, you'd ask, 'Something's wrong with this image, what is it?' On interiors, I'd always try to frame foreground people or objects in silhouette. That way, the audience would feel that element of darkness even though the performers are quite bright.

"Both Chris Carter and Rob were very concerned with the composition, and with giving the movie a cinematic look," Russell continues. "Television is very conducive to having big faces right in the middle of the screen, and you often need to use a lot of tight close-ups just to be able to see the actors. As soon as you do a wide shot, definition is lost, people get small and it's difficult to see anything. Rob was used to shooting with wide lenses on the show, while I'm more accustomed to using longer lenses, and we had discussions prior to shooting about going with longer lenses than he was used to. Unfortunately, we were shooting in Super 35 and not anamorphic, so we lost a lot of that long-lens feel that you can get with anamorphic. But even though we were using spherical lenses, I tried to encourage him to use longer focal lengths all around. Instead of using a 27mm, for instance, I'd tell him to use a 50mm and pull back — basically doubling whatever he'd put on the camera and backing off to lend a sense of compression to the imagery. It was a learning process for both of us; Rob was learning about long lenses, while I was learning about wide lenses. It will be interesting to see the final cut of the movie; for some scenes we used wide lenses, and for others we shot exclusively with long lenses."

"The use of longer lenses and was something Ward brought to the party because of his experiences with Tony Scott," Bowman elaborates. "Using longer focal lengths also allowed Ward to create a more specific lighting style. Because the lenses weren't showing off as much to the right and left of frame, Ward was able to place his lights more specifically."

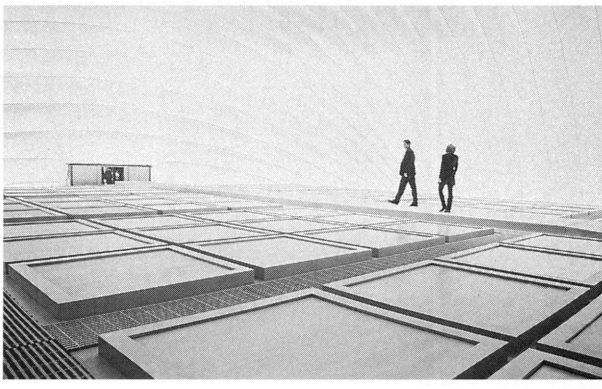
The X-Files movie opens as a bomb is discovered within a Federal building in downtown Dallas. It quickly becomes apparent that the FBI can't disarm the explosives, so Mulder and Scully flee the structure and try to escape by car. Designed to start the film off (literally) with a bang, the sequence allowed the filmmakers to confront the audience with a large-scale event as it unfolds in full impact and scope. This marked a true departure point from the television show, which usually presents only the aftermath of a cataclysmic event. "I think I went through that sequence seven or eight times in the storyboards," recalls Bowman. "I had all of the classic angles that we are used to seeing for explosions, but I still thought, 'There's something that's not breaking through here. We haven't cut through to anything special.' I wasn't inside [Mulder and Scully's] car as much as I should have been because all of the typical angles for the explosion were outside of the vehicle. So I decided to do a version of the storyboards where we see the entire sequence from only *inside* the car.

"Although that's not exactly what ended up in the finished film, it *is* the crux of the [visual perspective]. You are *with* Mulder and Scully right next to that exploding building. Although there were a lot neat shots outside the car that we didn't cover, the sequence sets the tone for the entire movie by establishing the audience's perspective, which is right alongside Mulder and Scully."

The sequence offered its share of logistical challenges. Bowman notes, "We worked with the special effects and visual effects guys using hydraulic rigs and propane explosions. We also got some brave stunt work from David and Gillian, who crashed into some parked cars without wearing seat belts. All of those elements were combined to create what I think is a very visceral experience that's not made up of typical movie gags."

"Rob really wanted to always be right there with the actors, as we see the explosion through the car's back windshield," says Russell. "The

Agents Mulder and Scully survey the interior of the enigmatic domed structures erected in the middle of a remote cornfield. While the exteriors of the tent-like domes were shot on location in Bakersfield, California, the interiors were executed on stage at Fox. "We did some exposure tests inside the domes to determine the best stop that would hold the detail in the fabric and the actor's flesh-tones," notes gaffer Jerry Solomon. "At 500 ASA the fabric read at about a T8 and the faces were at about a T2.8/4. We basically split the difference."



Elusive Truth

Conspiracy participants plot their next move. Russell's lighting approach regularly incorporated strong yet soft backlight and crosslight, with little fill. He notes, "I like to light through windows and use source [as a motivation for lighting.] Whether it be a 20K or a 12K, I'll use the biggest unit possible to pump light in and let it bounce around."

effects department built a car body on a traveling trailer. The car could have its windows blown out repeatedly, and it could be thrown up in the air by a shockwave effect [ostensibly created by the building blast]. As the shockwave approaches, we see five other cars on the street behind them being blown over like leaves, which is very effective. We had three cameras in the traveling car: a two-shot [on Duchovny and Anderson] and a close-up of each to get their reactions as they're flung about in the car. At the same time, we see the explosion in the rear window. It really feels like you're there with them."

Russell adds that he was able to schedule the explosion so that the sun offered a back crosslight. He sought to keep its rays off the front of the building, allowing the blast to stand out more forcefully. The building could only be detonated once, so additional takes featuring Duchovny and Anderson being thrown around inside the bucking car were filmed as mortars and fire bombs were triggered behind the process trailer. To create interactive lighting in the car, three dimmer-controlled Maxi-Brutes, gelled red and orange, were driven alongside the vehicle to create a back-cross lighting effect motivated by the flaming blast.

A substantial portion of *The X-Files* occurs in an FBI interrogation/debriefing room, where Mulder and Scully are interviewed extensively by their FBI superiors. These scenes were shot on location within the vacant 26th floor of the Unical building in downtown Los Angeles. Russell details, "The interrogation room was a dark-paneled rectangular space with an eight-foot-high hard ceiling, no lights and some doors at one end. The challenge was to make the scenes visually interesting in this big boring box where you couldn't hide anything. Fortunately, there were light troughs at the top of the wall around the room, so we doubled up the fluorescents inside them all the way around the room to get a wash of light bleeding down the walls. There was a big table at one end of the room where the FBI's review board sat; there was a big Federal logo and some flags on the wall behind them, so I highlighted those elements with Peppers on the ground to add some visual interest. Additionally, on the tables, I had some small goose-neck desk lamps, so we made sure that everyone had plenty of white paper in front of them on the table to bounce a little bit of light up from below.

"The rest of the lighting was then a matter of designing the windows so that I could position lights outside them and create a broad, soft light source. The art department found some large vertical blinds that we could open and close like shutters; those allowed us to increase or decrease the intensity of the light as needed, and also to focus the light. I had six 20Ks outside shooting through 1000H paper on the windows. As long as we shot from angles into the light, we got a nice moody look for the people in the room. When we shot head-on, we also got a nice soft half-light coming in, so I would then just play the extremes — overexposing the key by a stop and using a slight level of fill to make the other side go three stops under."

"Basically, the windows served

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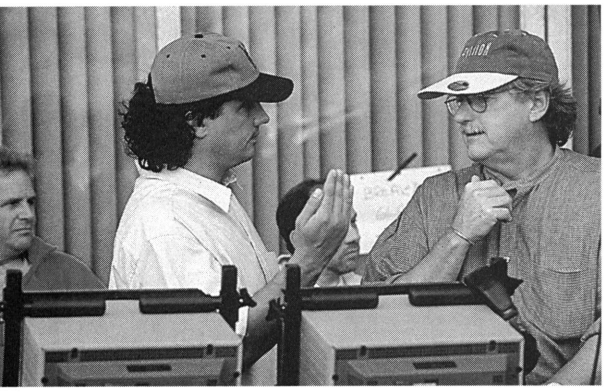


Above: Director Rob Bowman (left) and Russell consider their next shot. Below, right: Fluorescents illuminate a moody hospital room as the "Lone Gunmen" pay Mulder a visit. Opposite: In one of the film's more tender moments, chemistry ignites between Mulder and Scully in a hallway scene. "Both David and Gillian have beautiful faces, so there wasn't too much to worry about," confides Russell. "I tried to stay with more traditional movie lighting. I use a lot of soft light, especially Kino Flos, which you can put right up to the edge of frame to get a nice, soft wrap-around light."

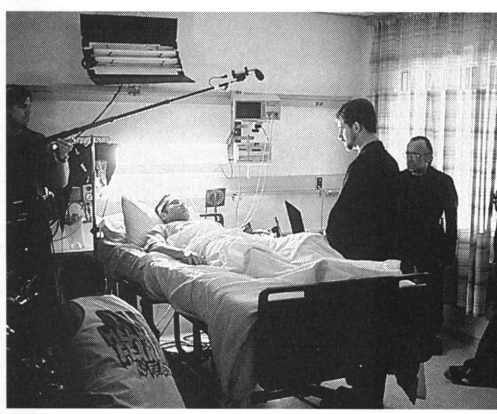
as the only source in the room," adds gaffer Jerry Solomon. "But the window light was wrapping [around the actors] enough that we didn't really need to fill much. Depending on what we saw, we'd then determine whether or not we'd add fill or put a bounce card in. For the interiors, Ward generally used a lot of broad, soft sources from both the side and back.

"From the crew's perspective, the biggest challenge on the film was the lack of prep," Solomon continues. "We basically had two types of setups on the movie: the exterior location work — which was first up on the schedule — and then the stage work. We were shooting the exterior scenes as we were prepping the stages. We often had to shoot our tests on our lunch hour and on weekends to make sure that what we had in mind was going to work."

A major sequence in the film takes place in a vast cornfield where two mysterious, glowing white domed structures have been erected for some clandestine purpose. For exterior shots of the domes, the production utilized tent-like structures similar to portable tennis courts. "The domes were great because they were made of a translucent material," explains Russell. "I took five bare 20K bulbs and lined them down the center of each dome. When we turned them on, they lit up the spaces like big Chinese lanterns. For scenes within the domes — which were 150 feet long and completely filled our stages — we wanted the walls to glow, but we didn't want to see any of the light sources. We obviously couldn't just use one light source outside the dome, since we had to have the light coming all the way around the entire structure. To accomplish that, we put strip lights about 10 feet back around the bottom and then had a grid of about 140 to 150 2K Skypans coming in toward the top. The only problem was that we had hot spots in the dome's material because we couldn't get the lights far enough away on the stage. I had the grips run 20' by 20' silks all the way around in between the lights and the dome to soften the hot spots and create this wonderful, surreal, ribbed white structure. I didn't want the walls blowing out too much because I loved the rib effect, so I used my spot meter and overexposed the hottest part by 2 to 2½ stops to get some detail in the shadow areas." The dome's interior lighting was then completed with a series of Kino Flo banks placed under a central walkway, as well as a truss rigged above with rows of 1K Par cans that were aimed straight down.

After discovering the purpose of these cryptic structures, Mulder and Scully flee the dome, only to be pursued by two Xenon-equipped helicopters. Our heroes' flight through the cornfield presented the cinematographer with an equally harrowing dilemma: lighting an area half a mile wide in the dead of night. "With the helicopter chasing the agents, I knew I had to photograph certain shots from the aircraft. To give the helicopter's camera some flexibility, I wanted to be able to use a zoom lens, which required a minimum stop of T2.3 stop on a Primo 5:1. With that large an area to light, however, it became a question of having enough illumination. I called Musco and asked if three Muscos positioned in the cornfield would give me at least a T1.4 out in the cornfield. Fortunately, the company has a computer simulation program that can 'position' an array of Muscos and tell you exactly what stop you'll have. With three Muscos providing a moonlight effect on one side, and another on the other side [simulating the white light from the domed structures], I knew I had enough light to shoot the sequence without pushing the film."

Solomon adds, "We utilized different sections of the field so that we always had pristine areas of corn, especially when we were using the helicopter. Lighting up the entire area required those big lights, but when we got into our close-up work, we covered the Muscos with light gridcloth, craned them down and brought them in so that the light wrapped around the actors a little more and wasn't quite as hard as it was in the master shots. We also spent a lot of time opening up our camera angles and trimming away cornstalks to create openings for the light to shine through. [During the chase scene] there was always backlight from one or two of the Muscos, while another was slightly softened toward the side to provide a bit more wrap around the actors. There was approximately 200 feet of running distance [along the edge of the] cornfield, and a road was built right next to it, so for certain shots a Shotmaker truck could track along with the actors as the camera captured the action from an



extended arm."

Russell concludes, "We had the two helicopters chasing our heroes through the corn with their Xenon searchlights panning through the field. I had the moonlight at a T1.4 and was shooting at a T2 or 2.3. But when the Xenon came into a shot, it would smash through the corn at a T16 or 22, highlighting the tops of the stalks and bouncing off the corn to light up the actors' faces a bit."

As *The X-Files* approaches its climax, the filmmakers bring the viewer inside an alien spacecraft that has been submerged for centuries beneath a vast ice field. "The ship is filled with these ice pods with bodies frozen in them," reveals Russell. "However, Chris Carter didn't want

to see any lights inside the spaceship, so I worked with the design department to incorporate lights into the set that could illuminate the actors without being seen. The idea was that the ice pods would be glowing, thus providing a general illumination for the set. Mulder also has a flashlight which we used to help illuminate him; as he looks at the pods, the light bounces back at him off the ice. I had to push the film a stop because the light that is supposedly coming from the glow of the ship's icy interior was barely readable. But by pushing the film and shooting wide open, we were able to read it without any problem.

"The interior of the spaceship had a palette of very pale greens and blues," he continues. "I worked very

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Shots of Mulder and Scully fleeing on the icefield were executed on a chilled soundstage in front of greenscreens and were lit to match the late-afternoon second-unit location photography shot in northern Canada by Jan Kiesser, ASC. Says Russell "Jerry Solomon and I created our 'sun' with 40 Maxi-Brutes that we positioned as close together as possible. We used this shower curtain-like diffusion to help blend the shadows together. We also had the ceiling filled with Spacelights to provide an ambient skylight."

closely with visual effects supervisor Mat Beck because there was a ton of greenscreen work to be done on the ship [see visual effects story on page 74]. Luckily, by testing different shades, we found that we could get away with the pale green lighting and not have a problem with the greenscreens. We actually only built a small portion of the interior, maybe 1/20 of the ship. Basically, we only shot one little spoke of a wheel; the rest of the ship was added with CGI."

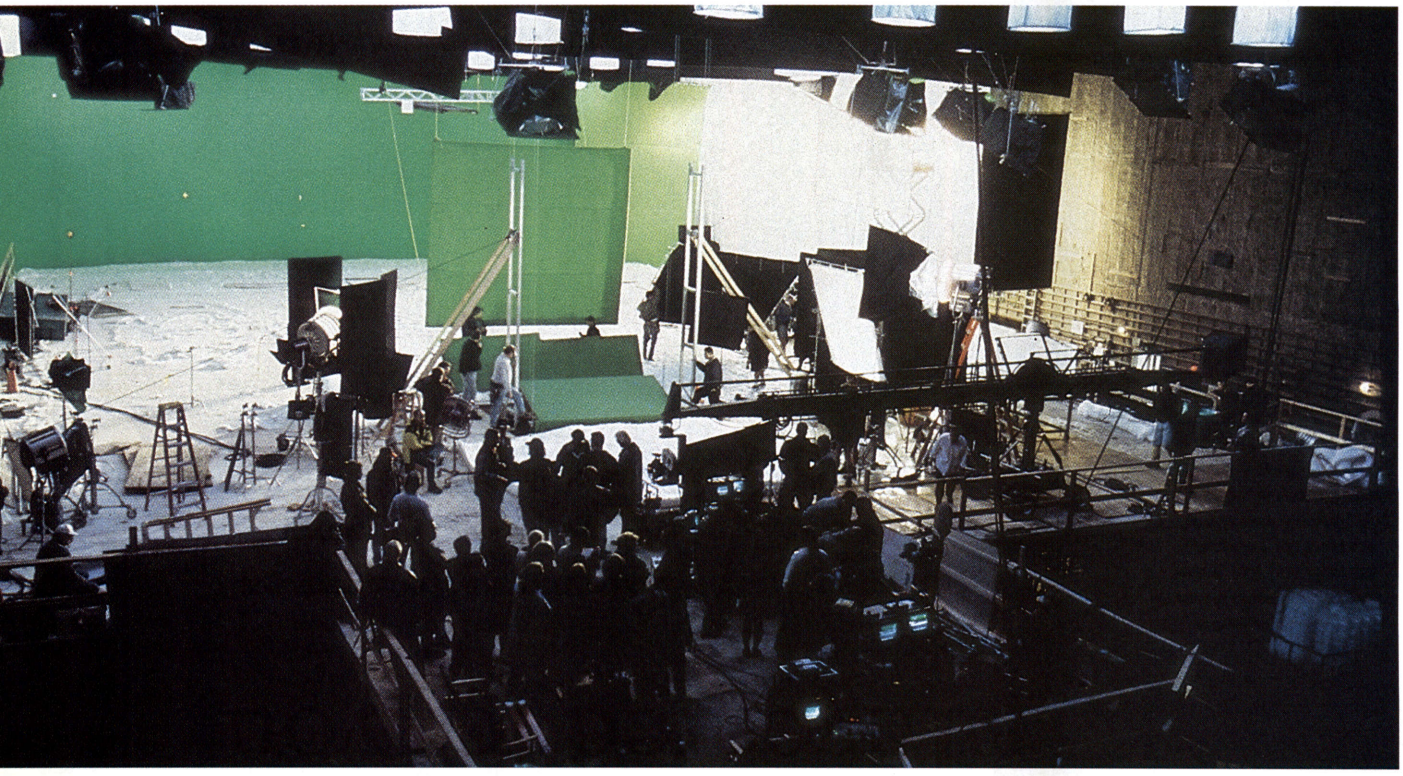
"From a lighting standpoint, the interior of the ship was fairly dark," Solomon expands. "The primary light sources were from these pods that had Mini-Flos inside them. We then we used rows of fluorescents to create the visual lines of the ship. Beyond that, we used some edge lighting to pick up the moisture and smoke in the ship, mainly small tungsten units. There weren't many lighting opportunities, so the fixtures had to be carefully chosen."

Mulder eventually finds Scully within one of the mysterious pods, but when he frees her, the dormant aliens begin to stir. Russell details, "As the ship came to life, there were a number of lighting cues, but we tried to stay away from the conventional use of warning buzzers and flashing lights. Instead, we used a lot of steam and water: as the light gets a bit brighter in areas, the ice starts melting. We had little rivulets of water running across surfaces, reflecting light. When [Mulder and Scully] finally climbed up and out of the ship onto the ice field, we had these geysers of steam coming out of the surface as they ran for safety."

Reflecting upon the hotly anticipated feature-film project, Carter submits, "Some people have asked me, 'Don't you think it's a bit ballsy to try and take *The X-Files* to the big screen?' My response to that question usually is that the show *already* takes a big-screen approach on the small screen. However, there *are* many differences in dramatic weight, scope, content and visual approach between the two mediums. Over the last year, I've learned that shooting for the big screen involves a very minimalist approach; every tiny little nuance reads as gigantic on the big screen. The actors, the camera movement, the dialogue and the [visual] information being presented read much differently than on television. You can't just take a television episode and blow it up."

"For Chris and myself, this film is the culmination of five years of practice in telling *X-Files* stories," Bowman concludes. "It was also an experiment to see if David and Gillian would translate to the larger screen. I believed that they had the presence to turn Mulder and Scully into full-size movie characters. While we were making the series, I always thought to myself, 'This feels like a feature approach to storytelling. When we do the movie, I wonder if I'll be right or wrong.'"

The truth is now being determined in theaters all over the U.S. ■



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Paranormal Activities

Visual effects supervisor Mat Beck leads an intrepid team of experts to help make the *X-Files* movie as "out there" as possible.

by Ron Magid

Photography by Julia Seltz

As a TV series, *The X-Files* is arguably the foremost bastion of the once-dead Val Lewton school of filmmaking. Ably assisted by directors like Jacques Tourneur and Robert Wise, Lewton produced such classic chillers of the Forties as *The Cat People*, *The Bodysnatcher* and *I Walked with a Zombie*, scaring the pants off audiences with ambiguous frights. The imaginative value of such minimalistic terrors is also apparent in the *X-Files* summer movie, subheaded *Fight the Future*.

Delivering the requisite thrills for a broader moviegoing audience — while still serving up sufficient mystery for a hardcore fanbase accustomed to cool, ultra-chic chills — is the dilemma facing series creator/screenwriter Chris Carter and director Rob Bowman. "It's a big movie, so we've got to put some sizzle up there, absolutely," Bowman agrees. "But you still have to figure out what you're looking at and what it means. We're still telling the story in the same way, letting the audience fill in a lot of the blanks themselves — now we're just telling it bigger. Because of the possibilities afforded by visual effects, we used them, but

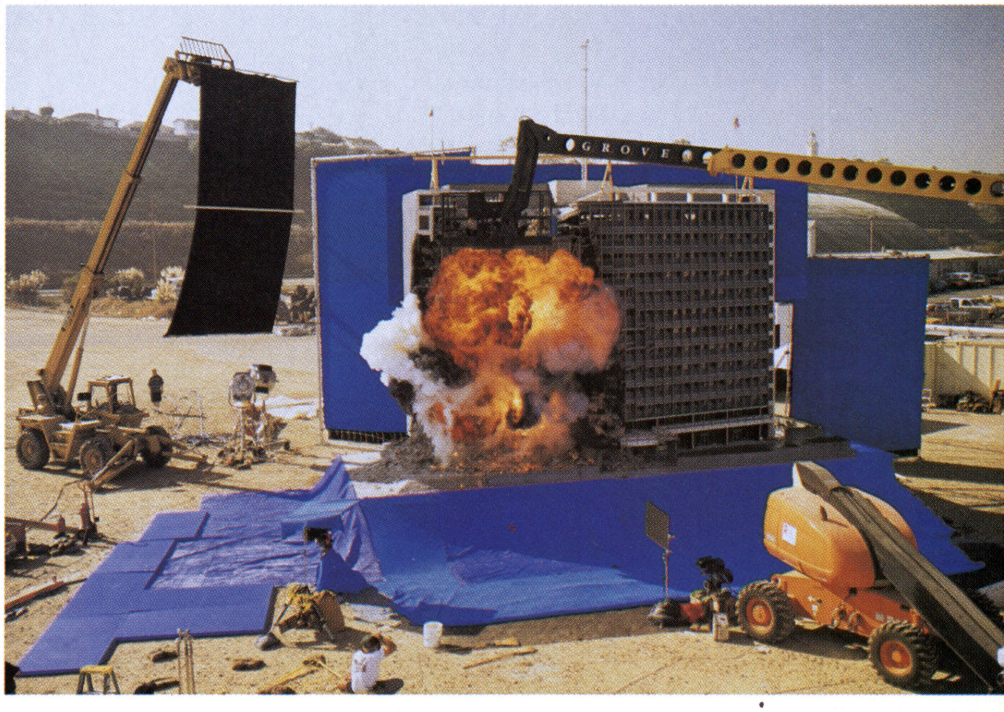
Photos courtesy of 20th Century Fox.

we did not 'sell out.' We haven't forgotten how to tell a story the *X-Files* way; we may have given you a bit more rope, but you still get to hang yourself!"

Bowman and Mat Beck, the director's partner in creating covert visual effects, have been producing suggestive yet sinister imagery for years: Beck served as visual effects supervisor for *The X-Files*' first three seasons. Though many of the program's startling effects were achieved in the camera, others were created by Beck's four-year-old effects house, Light Matters. The firm (which recently combined forces with Pixel Envy to capitalize on that house's strengths) has also contributed CG, motion-control and high-speed miniature photography to such high-profile features as *True Lies, Strange Days, The Nutty Professor, Volcano,* and *Titanic.* Beck also brought these techniques to bear on the *X-Files* movie, in conjunction with primary effects company VIFX (*Titanic, The Relic*), and Hollywood Digital, but Carter and Bowman's self-imposed storytelling restraints created startlingly different results. "People expect to see a little bit more [in the feature film], and they get to see that," Beck admits. "A lot of the success of the series has to do with atmosphere and production value, but ultimately audiences care about Scully and Mulder — the same will hold true in the movie. There will be plenty of eye candy, but we want it to be tied to the story. The most powerful thing we have working for us in the theater is the imagination of the audience — it's a cliché, but it's so true. *The X-Files* has always said more by implication than by direct imagery, and we tried to hold to that in the film."

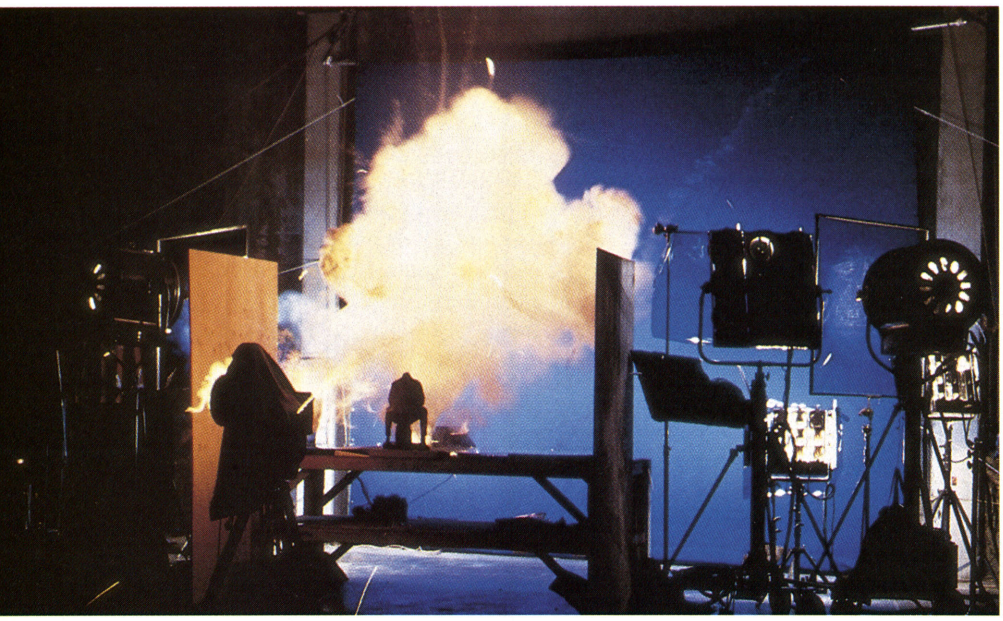
The project is Bowman's second feature; the first was *Airborne,* a 1992 teen rollerblading romance. Prior to that he had been one of the top directors on *Star Trek: The Next Generation,* but Bowman found his own sensibilities to be surprisingly in sync with the style of *The X-Files.* "I wanted to get into my heart's desire, something that was darker and much bigger — tales about conspiracies and the paranormal. On *The X-Files,* I was dealing with secrets, lies, shadowy figures, grand conspiracies and how the government gets away with manipulating public opinion. Chris Carter's sensibilities interested me, and I found that we had a lot in common in terms of the kinds of stories we wanted to tell and the movies we liked so much while growing up — *The Wizard of Oz* and the *Night Stalker* television show."

Given that they generally have a matter of weeks to complete the average *X-Files* episode, Bowman and Beck probably *could* have enjoyed what must have seemed like an endless feature-film schedule — if the picture's expectations weren't so



Left: Agent Mulder (David Duchovny) gazes in awe upon the vast interior of an alien spacecraft, rendered with the help of digital technology. Below: An explosion rips through the production's 22' tall, 1/8-scale miniature of the Dallas Federal Building. Pyro effects were supervised by Ian O'Connor.

Paranormal Activities



An FBI agent is too late to stop the obliteration of the Federal Building. A miniature "agent" was shot with the pyro element to hold place against the blast (above), which was then blended into the finished scene (below right).

much greater. Says Beck, "Whatever form you're working in, whatever time you have, whatever dollars you have and whatever size box you have to fill, you *will* fill that box to the fullest, regardless [of the venue]. If the show has to be on the air Friday, we'll be finishing it Thursday night. The movie is definitely an expanded palette, but it's a different kind of challenge. Both forms demand a lot of energy, creativity and collaboration with other creative people."

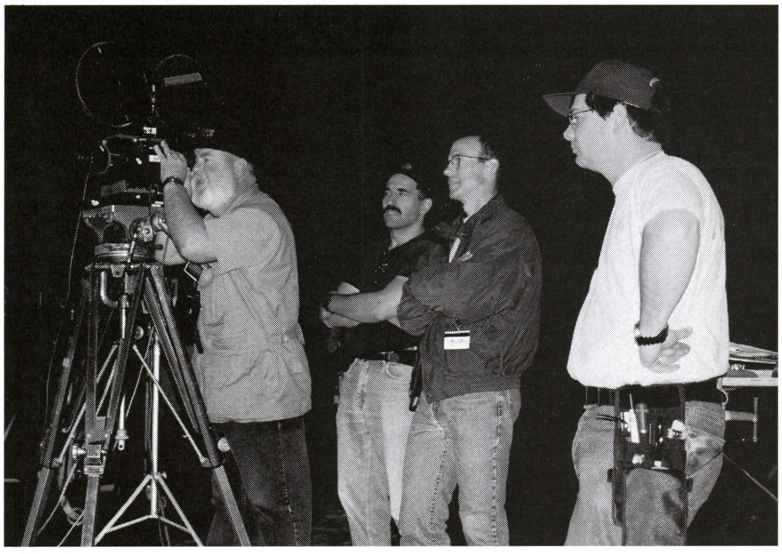
One of the film's most controversial sequences is the jumping-off point for Mulder and Scully's cinematic odyssey: the pair of paranormal profilers arrive for a meeting at a Dallas Federal Building, only to see the edifice explode with all the fury of Oklahoma City's Murrah Federal Building. The sequence combined on-location pyromania, high-speed miniatures and digital sleight-of-hand to create the palpable terror of a real bomb blast which shatters the building's underpinnings and causes its walls to crumble away. The first unit shot real pyrotechnics erupting from a fake facade constructed in front of the Unical building in downtown L.A. (doubling for Dallas), but the bulk of the destruction involved blending the real location with a 22' tall, 1/8-scale miniature of the wrecked structure, built by Hunter/Gratzner Industries and then shot and composited at VIFX. As with the best effects of the TV show, audiences bring a lot more to the end result than the filmmakers actually depict. "People will get the impression that they watched the building blow up, but it never really does. Even the miniature doesn't blow up — it was built with a huge chunk blown out of it already," Beck proudly proclaims. "Bob Spurlock [former co-owner of Stetson Visual Services' model shop] was heavily involved in the design. We shot the plate with the camera cantilevered out from the top of the Unical building on a jib arm, looking down, as Paul Lombardi created a practical explosion rising up to camera."

VIFX visual effects supervisor John Wash and his team then matched the high-speed camera shooting the miniature to the original background plate. "Mat and Hunter/Gratzner came up with this great idea to get the shot economically. Instead of collapsing the whole building, they decided it could play just fine by showing a section of the building collapsing," Wash recalls. "We set up our VistaVision camera looking down on the 1/8-scale miniature building, and used its cubic structure and straight lines to help line everything up with the original background plate shot hanging right over the edge of the full-sized building. Because we were shooting with a wide lens, when we mounted a

miniature facade — about eight floors long and 1/4 the width of the total explosion — right up close to camera at the top of the model building, it filled our field of view. Then, with the camera running at 72 fps, our pyro guy, Ian O'Connor, did a terrific job dropping the facade just at the right moment so you could see it break apart and then get engulfed by the fireball rising from the base of our miniature building. The timing of everything was the trickiest part."

As in the series, evil extraterrestrials weave their wormlike tendrils under human skin to transform ordinary Americans into willing pawns, an effect Bowman insisted on pushing to the limit in the film. This approach was something he learned from his first effects mentor, Oscar-winning *Titanic* effects supervisor Rob Legato, when both were starting out on *Star Trek*. "Rob introduced me to visual effects and encouraged me to push the envelope," Bowman says. "He also always insisted that we storyboard everything ahead of time. On this movie, I was free to do what I wanted with the camera as long as I kept to the boards. When we storyboarded a shot, we tested it, and did everything we could think of to 'throw rocks' at it — if it still held up, then that was the shot."

When planning shots involving the malevolent subcutaneous worms, Bowman and Beck realized that the creatures would have to be more complex than their TV counterparts in order to appear more convincing on a 70' screen. Even so, Light Matters/Pixel Envy managed to recycle some elements from the series. "When the goop gets in the eyes, it's very similar to the TV show," Beck says. "We shot a bunch of new elements, but we also used some of the old stuff that we had done for the TV show, because it was shot on 35mm film and looked good."



Visual effects director of photography Jim Weisiger peers through the eyepiece of a Mitchell camera as effects supervisor Mat Beck, VIFX/Blue Sky effects supervisor John Wash and first assistant Dave Swett stand by.

Although this bit of recycling helped, Beck did employ one general overriding principle that became a production mantra: create several tiers of detail so that when the audience sees something, they are not certain that *everything* has been seen. "It's almost like a fractal figure — however much detail you can see, we put another layer of detail beyond it that you can't quite see," Beck explains. "Because you see more [on the big screen], we had to work harder to obscure things."

This was certainly true of the cinematic subcutaneous worms; audiences are afforded some intense, close-up inspections of their victims' skin and fine hairs. "It was a CG challenge to both track the worms to the actors' bodies and deform the skin in such a way that it didn't look like a CG deformation," Beck says. "We did a lot of testing to determine how bruised the skin should look, how many worms there would be, and exactly how they should move — whether they would accordion and inchworm along, or squiggle. Each time, [the effect became] better and creepier."

During the film's climax, Mulder penetrates a bizarre, gargantuan structure ultimately revealed to be the interior of an alien spacecraft. Bowman shot his actors in a huge interior spaceship set that filled 20th Century Fox's distinctive Stage 16 (a massive space with a large pit at its core), and then had Light Matters/Pixel Envy significantly augment the live environment via computer-generated set extensions. Even given the actual set's massive breadth, the incredible, otherworldly environment revealed during Mulder's search for the missing Scully is almost completely synthetic. "The set itself was extremely elaborate, and served as two different levels, but it represented only about 1/32 of the total spaceship interior," Beck estimates. "The set portion was shot first as one level featuring green glowing cryopods with frozen people inside, then redressed and shot as another level. Except for the set, the interior of the spaceship was completely computer-generated by Colin Strause, Greg Strause and Edson Williams. There were two big 12'-diameter pipes on the set, so we translated that motif to create the sense that the walls themselves were made up of pipes running at an angle. Beyond that was a shell the size of the Forum [the L.A. sports arena], and behind that was a bigger Forum with a bigger Forum behind that. Ultimately, it appears that

Paranormal Activities

Right, top: A pair of crew members stand atop the arctic "ice table" set. Bottom: Actor David Duchovny passes both blue- and green-screen backings as he tours the spacecraft set.

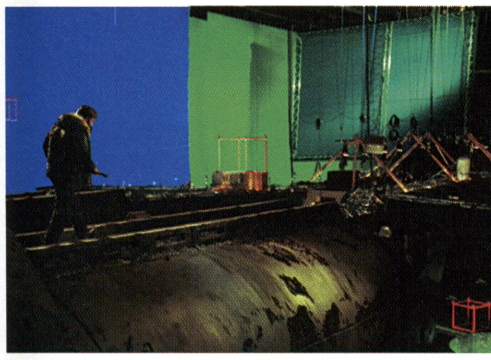
there's a huge open space where Mulder can see 800 feet across with backlit corridors going off. It's an attempt to combine an enormous amount of scale with an enormous amount of detail and complexity via computer graphics."

That attempt was both enhanced and thwarted by what Bowman has dubbed "subtractive lighting," the series' patented sci-fi noir photographic style, emulated for the feature by cinematographer Ward Russell. "You light it up, walk around it, then subtract some of it, and you're left with just what you need," theorizes Bowman. This conceptual approach seemed to work well with Bowman's definition of the spaceship interior, described by the director as dark and funereal. "My word for it is sepulchral. It's not bright at all inside the ship. It's a gloomy place, and when we come upon the ship, it's asleep — like a computer with its screensaver on. My feeling about spaceships is that we should give audiences just enough to pique their imaginations, but not enough to define the craft. I wanted to convey a sense of a fabulous superstructure but not reveal that it's a spaceship yet. All I wanted to see were some cool shapes. If we're too literal with the images, then viewers might say to themselves, 'Hey, it's a spaceship — I get it.' If that happens, then we've gone too far."

In theory, keeping shapes in shadow to show less has always made the jobs of visual effects artists somewhat easier, except that with CG, images can go muddy or invisible unless a delicate touch is employed. "There's a very fine line, so we ended up doing a lot more film-outs, because your monitor is less useful in making aesthetic judgments when you get into the really dark footage around the toe of the [exposure] curve," says Beck, who brought his experience creating *Titanic*'s almost invisible CG iceberg to bear on *The X-Files* movie's spaceship. "We literally worked through balancing the darkness of the interior in CG. We had versions where we couldn't see enough detail, and you need enough detail to see the complexity that makes something look big. If we'd made it too dark, the audience wouldn't have been able to see what the hell is in the background — it would just turn to mud. Making something too bright, on the other hand, can give you a look that's a little CG-ish. For that reason, we kept things dark and put lots of light behind objects in our CG set, which creates a sense of great depth and allows a lot of the action to play out in silhouette. Part of the rule of *The X-Files* is the cliché that we hide stuff in light and shadow. In fact, in one episode of the TV show, there's a moment where you're looking at a spaceship and you can't quite see it because it's really dark; then all of a sudden, the light comes on and you can't quite see it because it's really bright! That's the kind of trick we like to use."

This type of radical contrast range is employed when Mulder first encounters the mammoth spacecraft interior. As the FBI agent walks down to the end of the upper rim corridor and into the interior area, he passes into darkness before emerging into blinding light. "It's a bit like entering the Forum through one of those entrances where it's all dark," Beck explains. "I remember doing that as a kid at Boston Garden, walking from this dark tunnel out into this room with glaring lights. We'd called that moment in the film the 'entering the arena' shot."

Shooting within the colossal colorful set was a fairly complex job; almost everywhere the camera was pointed, colored screens were set up to facilitate the CG set extensions that would be composited in post. To achieve the proper contrast, the colors of the set and the effects screens had to be different. Beck recalls, "David Duchovny was wearing a navy blue suit, and in the original test, the spaceship was lit mostly with blue light, so we had a really big greenscreen. But as the spaceship's



design evolved, the artists decided to put some green lights in, so as Mulder walked from one area to another, he crossed against a bunch of glowing green pods, then walked in front of a bit of the set before finally crossing in front of a greenscreen. We also had Day-Glo red tracking balls, cubes and marks within the set; there were actually shots where David was in front of bluescreen and greenscreen and crossing in front of those red tracking objects, so we had to make mattes for those, too."

If the shots inside the spacecraft had been fairly static, Beck and company would not have had such a rough time, but Bowman gave them no quarter in terms of camera movement. The director crows, "I shot handheld and did crane moves and all kinds of wild stuff; out of 200-plus visual effects shots, very few of them were motion control."

Indeed, Beck characterizes Bowman as "an extremely active-camera director," which created "adventures in tracking" for the artists working on all 30 of the spaceship interior shots. Consider, for example, what Beck humorously terms "the whoop-de-do grand-tour shot": Mulder walks through a huge vault toward the camera, which then swoops up as he passes, panning with him and looking upward at the ceiling. Finally, as he crosses the camera, it rises, looking over his shoulder and down at the gigantic vault. "I don't know what the percentages are, but there isn't much set in that shot," Beck says with a grin. "He's walking from the end of this corridor out onto this little balcony, so basically the little balcony and what we arc under is the set; everything else was totally CG."

In the next shot, the camera hovers above Mulder as he sees Scully down below; it then tilts almost straight down, following Mulder as he crawls through a hole in the balcony (revealing a downward view akin to looking off Yosemite's El Capitan) and begins his descent. "The hole in the balcony and the slide he's trying to climb down were real," Beck says, "but everything else — the entire environment that we're looking down at — was synthetic. There were these glowing pods down there floating above an even deeper abyss, with pipes going down into this faintly backlit greenish mist. Mulder begins sliding down, so the camera bounces down this track and does a whip-pan with him; it flies down the track to simulate his POV as he hurtles towards something he's going to smack into, and then bounces off into oblivion. It's like sliding down the Lhotse Face opposite Everest. Because we had such an active camera, that shot involved a lot of tracking. The whole environment was bouncing, so it was heavily

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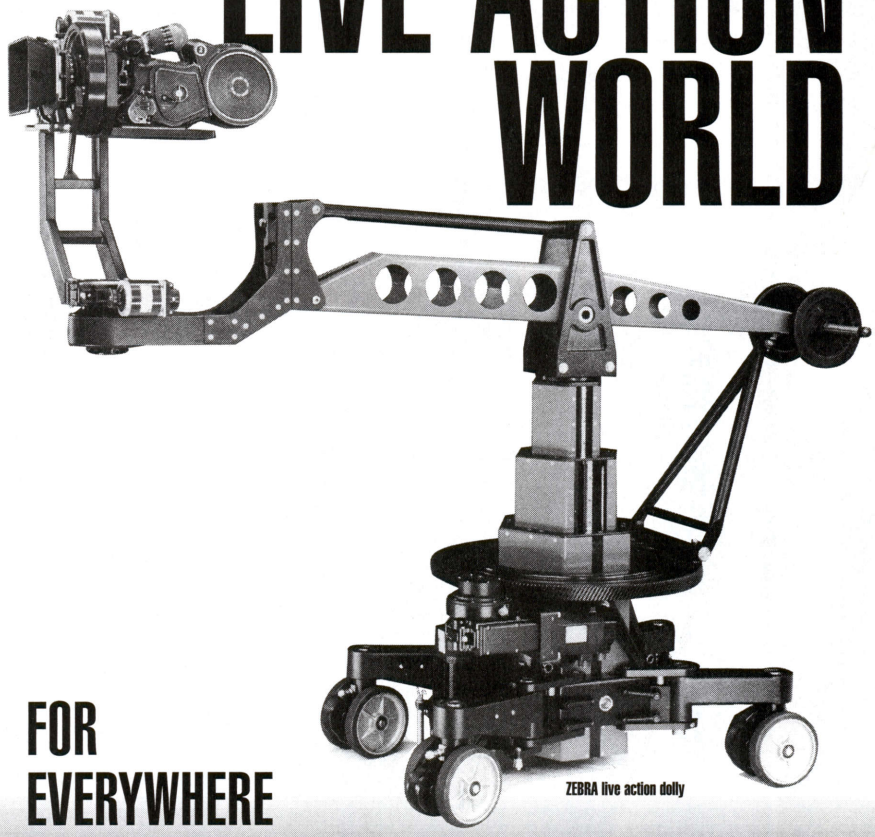

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motion-blurred, which was somewhat more forgiving. But that also made tracking more difficult, because all of our tracking marks also became motion-blurred. Fortunately, we had some tricks we could use to deal with that."

Some of Beck's suggestions included transforming the occasional complex tracking job into an in-camera shot. "There was a shot where Rob was dollying on a track past all these cryopods, and he went to a longer lens," Beck recalls. "Suddenly, it became a really complicated shot because of the bluescreen at the end of this little dolly. If we just cheated the camera back a couple of pods, the bluescreen would be really small in the frame and not changing as much in three dimensions, making it a much easier shot to do. Rob backed up the camera, and when he was done framing the shot, the bluescreen was in a little corner of the frame and there were green and blue setpieces off in the background. I said, 'Why don't we just shut off the lights on that bluescreen and let it be a dark blue so it will blend right into the set?' In the end, we saved a bluescreen shot. You don't have to make every shot an effects shot, and you also don't have to make every effects shots follow all the rules. Like a lot of things in life, you can get hurt breaking the rules, but you can also have a breakthrough."

Handling the tracking and compositing duties were Light Matters/Pixel Envy's Edson Williams, Colin Strause, Eric Liles and Jody Campanaro, who married the live-action setpieces to the wireframe CG models of the alien vessel's innards, which were then texture-mapped, lit and rendered. "We took a ton of photographs of the real set for reference, and we used some photographic elements to tie the set and CG together," Beck says. "But most of the textures were procedural and fractal textures that had their own complexity, which allowed us to more easily apply them to the wireframe surfaces."

Scully and Mulder eventually escape from the spaceship, emerging into a frozen Arctic landscape just as the UFO begins to blast off, cracking the ice beneath their feet. Once more, Bowman and Beck found themselves treading a fine line. "If we give the audience too much, then it's not *The X-Files*," affirms Bowman. But how do you keep a spaceship under wraps when it's the climax of your movie? "All you can really see of the spaceship is the underside," Beck says slyly. "Mulder and Scully are sliding off a really small part of it, which we built full size. We shot them on this 20' by 30' section of the spaceship against greenscreen, and

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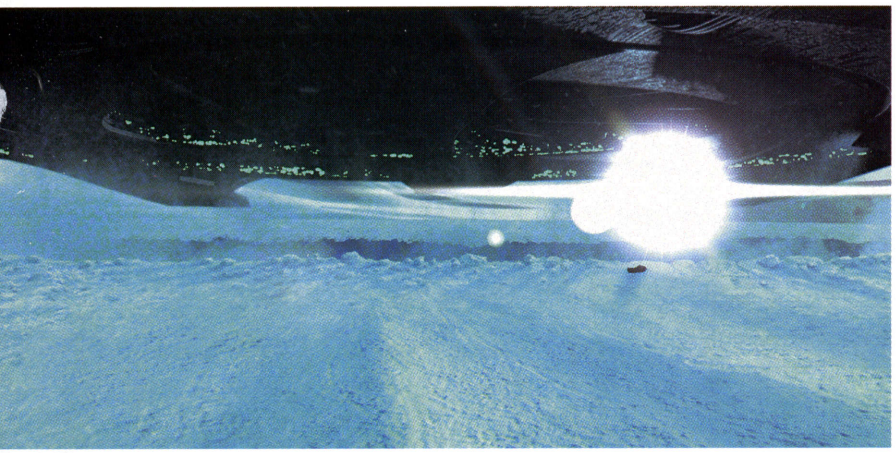


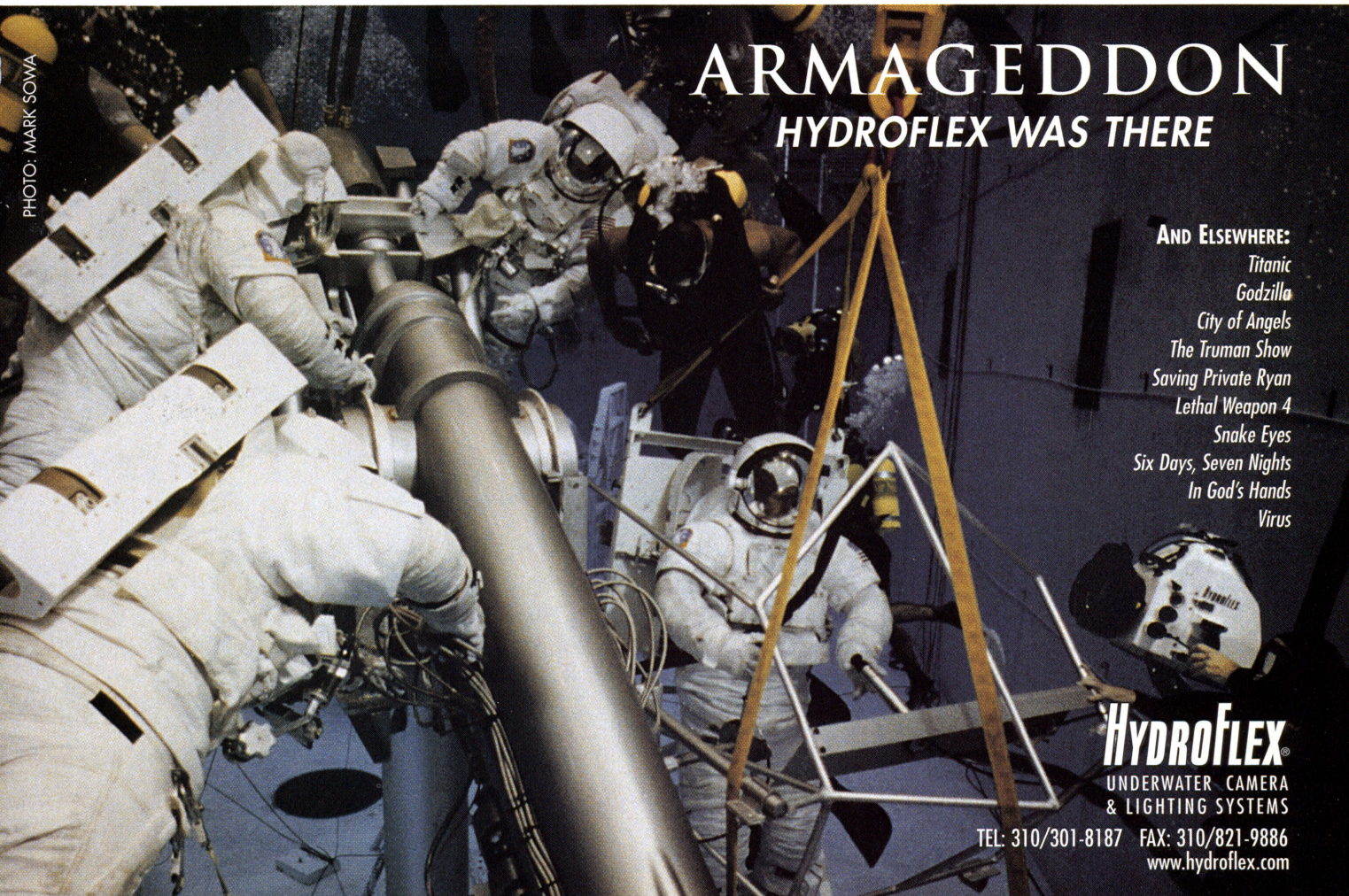
The massive alien craft lifts off. The visual effects team enhanced the illusion of immense scale by adding interesting patterns and textures to close shots of the saucer.

getting all of that designed and worked out was an adventure. As the camera zooms around it's facing down, but eventually it spins around and faces up, and then backs off! We had a world of greenscreen up there and had to get the move tricked in so we could digitally extend the setpiece and add the background as needed."

VIFX shot the spaceship erupting out of the ice at high speed, using a 15' saucer model edge section, which the firm built in-house. "I called the 15' model the retaining wall," Beck says. "VIFX's modelers created a textured look by stacking a bunch of layers on top of one another, which gave the side wall of the spaceship some complexity."

When the spaceship finally becomes visible, it's revealed as an immense flying saucer measuring some 1,200' across. The trick for Beck and Bowman was to keep the saucer somewhat oblique, while adding a novel twist on something that audiences have seen countless times before. "Every time we see the ship, it's just enormous and over their heads," Beck says. "The design was a long time in evolution and had some commonality with previous spaceships that we've seen on *The X-Files*, like the one we did for the 'Paperclip' episode, which Rob directed. That particular vessel was just a very simple CG thing because it was for TV. For the film, I tried to apply the notion of multiple backlit layers, where you can't see what any of them are but you can see light sources behind the shifting patterns. That's a way to hint at complexity without revealing too much information."

With that concept in mind, Beck worked with Tim Flattery in



Paranormal Activities

Subcutaneous worms slink beneath the skin of a young boy (Lucas Black). The Light Matters/Pixel Envy team strove to make the creatures even creepier than their TV counterparts.

the production art department to come up with the saucer's original design, and with Alison Yerxa, a digital artist at VIFX, to create some unusual textures. In Alias, they devised a craft that appears to be smooth from a distance, but which reveals interesting patterns and textures up close and under certain lighting conditions. "The trick was to make it smooth and sleek-looking, yet have enough texture to make it interesting to look at and to show scale," Beck says. "We also wanted to convey the sense of finer detail than your eye is actually capable of resolving — layers behind layers that hint at this underlying structure. In that sense, the spaceship was a metaphor for *The X-Files* — the impression that there are things going on behind the curtain in back of the curtain."

While formulating the spaceship's exterior design, Beck met with VIFX visual effects supervisor John Wash and modelmaker Scott Schneider at Yerxa's workstation, where they experimented with some bizarre textures. "We used a combination of graphic arts techniques and miniature building that allowed us to put really fine, interesting textures on the surface," Beck states. "People have been using etched brass for years to detail miniatures, but I wanted very fine detail within detail, like a city viewed from the air. We got examples of all kinds of aerial photography, such as Moroccan villages with endless repeated structures that look repetitive and structural but at the same time organic. Then I thought it would be cool to use the Quantel Henry's embossing function, so I asked Alison Yerxa if she had any cool fabrics. When I came in the next day, she had thrown her silk jacket on the scanner and created all of these cool textures.

"While Scott Schneider at VIFX was building this gorgeous six-foot spaceship miniature, we sent these various textures to be acid-etched. Instead of etching completely through the brass, we had them do a halftone process, as if they were making printing plates. Then Scott's modelers put the acid-etched brass on the model's surface in layers, so when we hit it with a hard raking light, we'd get these incredible shadows. For the spaceship's interior section, we also used etched brass with light behind it, with more etched brass with more light behind *that* to create lots of interference between one layer and the next, creating the sense of complexity unseen. Combined with some of John Wash's eloquent flowing mist and cloud elements, the ship looks pretty good."

Dreaming up effects with enough razzle-dazzle for the summer crowd and enough subtlety for *The X-Files*' core audience was a challenge that perhaps could only be met by seasoned pros steeped in the cult series' mythos. "Mat has known for years how I like to use the camera and my lighting sensibilities," Bowman says. "If I give him just enough time — and sometimes that's a minute less than he needs — he disappears and makes all of my dreams come true. I'm fortunate to have him around, because every day we're approving another shot that is just mind-boggling. Those things don't happen if you don't have a Mat Beck around." ■

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*Technical editing of the 8th Edition ASC Film Manual is being overseen by Rob Hummel, head of animation technology for DreamWorks, SKG. He is an associate member of the American Society of Cinematographers, and has served as an executive VP of the Technology Council of the Motion Picture and Television Industry, and is an active member of SMPTE.

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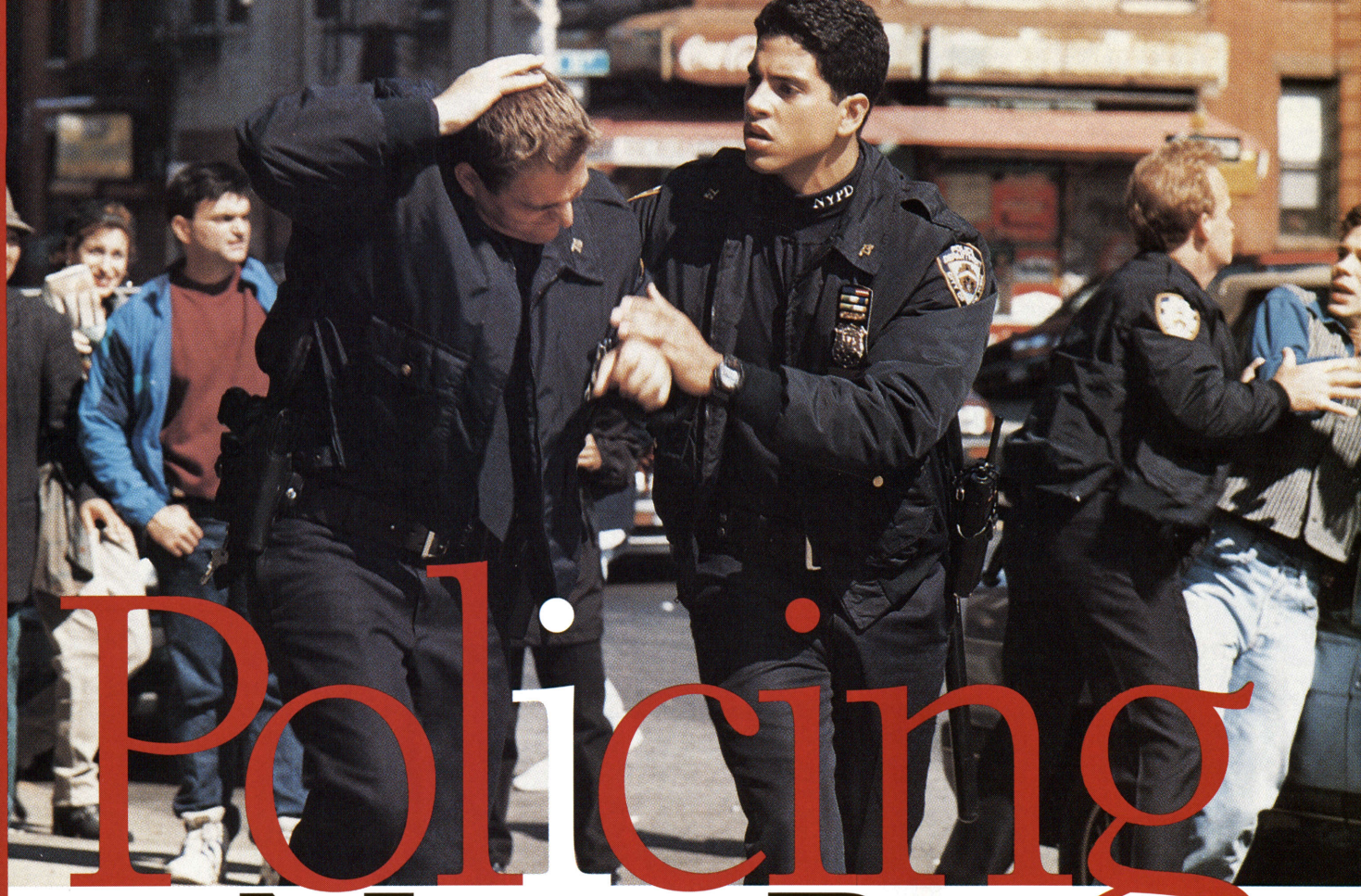


Policing a New Beat

Brooklyn South, a CBS series photographed by Bill Roe, strives to break the cop-show mold.

by Bob Fisher

Photography by Abbot Genser

It's a typical production day for the television series *Brooklyn South,* and the crew is staging a simple scene which runs for less than a minute. The setting is a grungy alley situated between two tenement buildings. If one stood in the middle of the alley and stretched out both arms, the brick walls would almost be within reach. At the far end of the pathway, two cops are grilling a character who is standing in a half-open doorway. Glaring light spills through the opening into the darkness. Midway down the cramped lane, a window high above allows a pool of soft, warm light to cascade onto the ground. The camera is in the foreground, dollying slowly toward the actors. Director Marc Buckland stands about 20 feet behind the camera, watching a TV monitor as three stand-ins walk through the scene. Thinking aloud, he considers augmenting the dolly shot with a zoom timed to catch the characters as they turn and stride towards the camera.

Series cinematographer Bill Roe hears Buckland from a position near the camera, saunters back and makes a casual suggestion. Buckland doesn't seem to be fully listening; he's talking to one of the producers about a line of dialogue that sounds a bit unnatural given the circumstances set forth in the story. Buckland runs through another take or two before calling for his "first team" (the actors) who play out the shot in two clean

Photos courtesy of CBS.

takes. Buckland does drop the dubious dialogue, and he also takes the cameraman's advice to make the zoom much more subtle. "We try to work as a unit," Roe describes. "Instead of saying that the dolly zoom was not going to work, and trying to talk Marc out of it, I showed him another alternative. He trusted me enough to look at what I suggested, and decided it was the right way to go."

In actuality, this dank alley is a set within a basement stage at the CBS Center in the San Fernando Valley, where the program is produced. *Brooklyn South*, the latest cop show from Steven Bochco Productions, shoots five days a week on standing and wild sets at the CBS Center, and two other days at practical locations, mainly in downtown Los Angeles neighborhoods where the old brick buildings look and feel like the show's namesake New York borough.

Midway through its first season, *Brooklyn South* managed to define its own identity and avoid being viewed as an *NYPD Blue* clone — even though the same writing team (David Milch, Bill Finkelstein and Bochco) scripts both shows. The trio's roots go back to the early Eighties and *Hill Street Blues*, which pioneered a police drama style that coupled gritty, realistic visuals with character-driven stories. But *Brooklyn South* has a different look and pace, and a distinctly different approach to storytelling.

NYPD Blue is about detectives who arrive at the scene of the crime after its occurrence and investigate. The ABC series has a hyperreal visual style, punctuated by what Brian Reynolds, the cinematographer on the show's first four years, calls a "flickering eye" camera. "*NYPD Blue* gives you a feeling of reality," observes Reynolds, who also shot the pilot for *Brooklyn South*. "It's as if you're really in the scenes as a witness, standing in the corner and watching a scene unfold. The camera mimics the way your eye would follow the action. When someone walks across the room, you stay with him for a bit and then pan back to the other person."

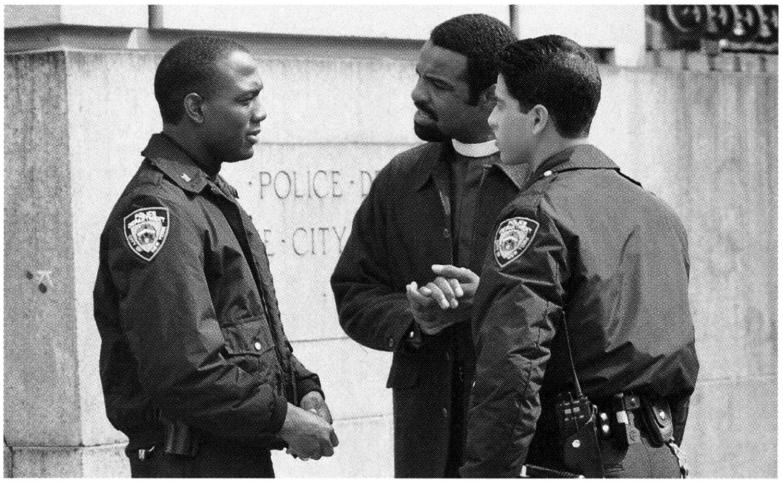
The milieu of *NYPD Blue* is Manhattan, where tall buildings diffuse and filter the warmth out of sunlight before it reaches ground level. Though *Brooklyn South* occurs in an adjacent metropolitan area, its setting might as well be a different universe. As Reynolds points out, "Brooklyn doesn't have a lot of really high structures, so you see more of the sky, and the light is a bit warmer and more direct. It's more of a natural look, with a more exposed daylight source and less light bouncing around." In addition, the scripts are not about detectives, but about cops in uniform who live with the unexpected every day.

Michael Watkins, ASC, a producer/director on *Brooklyn South* before he departed to serve as the new co-executive producer on *The X-Files*, notes that his former series benefits from bustling scenes involving many different characters — and that series cameraman Bill Roe uniquely captures them. "It isn't unusual to have 10, 12 or 13 people in a scene," he says. "There may be five or six different things happening. Bill's camera is almost always moving, passing off from one character to another. He shows you where they are and reveals what different people are saying and doing."

Watkins credits Roe for staking out his own turf and crafting a new look and pace that distinguishes *Brooklyn South* from its sister series. The program marks Roe's first episodic series as a cameraman, following 14 years of experience as an operator, and another three or four as an assistant and loader.

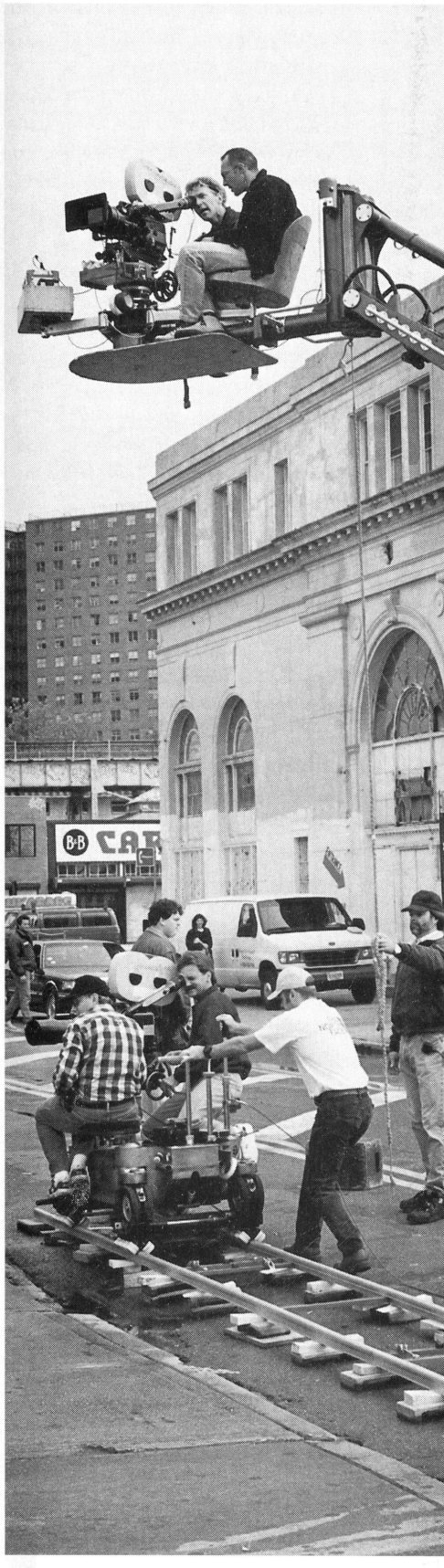
An assignment like *Brooklyn* is certainly a solid way for a cinematographer to start a career, particularly when glowing praise is proffered by a professional with Watkins' credentials. He earned several Emmys and three consecutive Outstanding Achievement Award nominations from the American Society of Cinematographers for his camerawork on the sci-fi series *Quantum Leap*. Watkins' other cinematography credits include the MOWs *Family Album, Steel Justice* and *Little Nikita*, as well as the big-screen features *Hearts and Souls* and *Point of No Return*. He shifted his focus to directing several years ago, helming such programs as *Millennium, The Client* and *NYPD Blue* before assuming his role on *Brooklyn South*.

Roe's first mentor was his father, who worked as a production manager. He recalls, "I grew up in the industry, and I used to visit my dad on location. When I was about 15 years old, I told him that I wanted to become a grip. He told me that cinematography would be a more



Opposite: A concerned cop (Adam Rodriguez) assists his comrade (Michael DeLuise). Below: The show's perspective details the daily rounds of the men in blue, bringing viewers into their midst. Here, two officers (Richard T. Jones, left, and Rodriguez, right) confer with a local priest (Anthony Lee).

Policing a New Beat



Getting proper coverage often requires two cameras. Here, B-camera operator Dennis Lane works from the crane while A-camera operator Dan Gold gets the ground-level view.

rewarding career."

Roe started out as a loader with Owen Roizman, ASC on *Sgt. Pepper's Lonely Hearts Club Band.* Fifteen years later, he served as A-camera operator on *Wyatt Earp,* a film which earned Roizman both Academy and ASC Award nominations. He also crewed with ASC members Michael Chapman, Adam Greenberg, and then Victor Kemper, who moved Roe up from second to first assistant, and later to operator. "The most important lesson I learned during my years as an operator was patience," Roe says. "That was the consistent lesson I learned by watching those great cinematographers. Michael was the one who told me that as you move up through each level, from first assistant to operator, and from operator to cameraman, you have to become more patient, because you have more to think about."

Roe had done some second-unit work as a cinematographer before Watkins promoted him to full-fledged director of photography on a TV movie called *Detention.* "I'll tell you how it happened," says Watkins. "Bill had worked with me as an operator on *Body and Soul* and a few other projects, and I don't think I'd ever worked with anyone who showed more loyalty to a project. I also noticed that the actors loved working with him."

Watkins says that Roe has a talent for giving the actors maximum freedom to use the environment without worrying about missing a mark. When a cinematographer establishes a bond of trust with the actors, it almost invariably results in better performances. "The actors know that he's looking after them," Watkins observes. "I've watched Bill help the actors understand why he is lighting a certain way, or why he needs them to hit a mark. When you have a big ensemble cast, it's a bit like choreographing a ballet."

Indeed, a large cast always needs to spend some time together before things begin to gel. "You look for a symmetry in the cast," says Watkins. "Sometimes, if you change one part, the new character changes the entire dynamic. There is a certain sense of harmony, but you have to seek it out. That means getting to know the actors and the sets, and how it all relates. If you have a big cast like ours, there are a lot of people doing different things, and the cameras can only see so much. For example, I might tell the B-camera operator to go over to Titus [Welliver, who portrays Jack Lowry] in the corner and look at what he's doing and what he's talking about. It's not something you can plan."

Filming an episodic TV show takes more than talent and skill; according to Watkins, it also requires an ability to pick the right battles to fight. There is never enough time to do everything, he explains, so one has to choose *key* scenes. "There's a real danger of becoming bored with your own work," he observes. "Bill doesn't play it safe. He's willing to push the boundaries and explore some new territory. That's why the look of *Brooklyn South* is constantly evolving. His choice of lenses, as well as the dynamics of where and how he moves the camera, indicates a special talent."

That type of instinct and know-how translates into an ability to put more information in the frame. As an example, Watkins cites a recent episode in which two cops are seen brawling in an alley. A variety of things happen in that one shot: two people are talking in part of the frame; the fight's loser is being helped out of the alley; a lookout is situated in the foreground while another character stands fast in the background.

Watkins adds that the hard rain falling during the melee wasn't part of the original script. During a brief conversation while prepping for the scene, Roe and Watkins agreed

that more drama would be achieved by filming the two combatants in silhouette. That idea led to their decision to stage the sequence in a downpour. "Bill backlit the rain, which provided a background for the silhouettes," Watkins says. "He really went for it. The water on the ground formed a glistening, reflective surface. Midway through the fight, we turned the water off to signal the end of the violence. By then, several police cars were blocking the back of the alley, and red and yellow light was bouncing off the walls and ground. It's a stunningly dramatic sequence."

Roe says that the decision to use rain to create silhouettes was purely instinctual — very little discussion occurred between the cinematographer and director. Watkins wanted to subdue the scene's mood, and it seemed obvious to Roe that he should add water to the sequence.

"There are different subplots in the show," Watkins says. "Bill feels these stories viscerally. The camerawork is always aggressive. If it's not a 17mm or a 20mm lens, it's likely to be a 200 or 250mm. Everything between the knees and waist is boring on TV. And while the series has a warmer look, we're not afraid to use harder, colder light at times."

Watkins also factors in the importance of the show's setting: "The first time I saw Brooklyn, I realized it was a country divided by streets, with natural-born enemies separated only by a double yellow line," he says. "You could cross a street and be in a different world. The police actually work with the population, and it's not based on intimidation, but on interaction. We're trying to tell the stories from the policemen's point of view, but that changes from show to show and scene to scene."

Roe shot about a week's worth of backgrounds in Brooklyn, and got additional pickup shots from a couple of second units. He generally

"As far as I'm concerned, Fletcher Chicago became a part of the production team."

— Peter Gilbert, Director of Photography and Producer, "Hoop Dreams"

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Giving *Brooklyn South* the VIP Treatment

Faster, cheaper, and better are qualities everyone desires, but it seems to be a truism that only two of these virtues can be acquired at one time. But by utilizing Encore Video's VIP telecine process, the producers of *Brooklyn South* appear to be achieving some level of all three.

What is VIP? Developed three years ago at Encore by former colorist and current technical director Mike Most, VIP features proprietary engineering that enables every Rank Cintel telecine in the facility to output two image signals simultaneously. The first becomes a "one-light" dailies transfer, while the second signal is raw RGB information recorded to a digital format tape (in this case, Ampex DCT). "This allow us to preserve the film's RGB as it was shot in the camera," explains *Brooklyn South* colorist Steve Porter. "It's uncorrected, with density settings we established for maximum amount of latitude."

With *Brooklyn South* associate producer Tracy D'Arcy supervising, Porter uses a da Vinci Artisan for a tape-to-tape color correction.

Purists may cringe at the thought of tape-to-tape correction replacing a neg-to-tape finish, but Porter insists that the VIP process can achieve the same quality end product. In fact, Porter notes that even *Brooklyn South* producer Mark Buckland was once a skeptic. Three years ago, Buckland was producer of *Murder One*, on which Porter served as the color corrector, a task that garnered him a 1996 ITS Monitor Awards nomination. "Mark didn't believe we could get the same quality of image from a tape-to-tape process that we could from the negative process," remembers Porter. "So I hung the *Murder One* film and also color-corrected the same scene from the DCT VIP tape, and he was unable to determine which was which. That convinced him."

Other producers have become true believers as well. *Ally McBeal*, *The Practice*, *Nothing Sacred*, *Lateline* and *News Radio* also utilize the VIP process.

The main advantage offered by the VIP process is speed. Porter reports that it would take two full days to color-correct the *Brooklyn South* negative, whereas it only requires approximately 12 hours with VIP, thus saving at least four hours. "It takes 10 to 20 minutes to clean a roll of negative, and additional time to hang it on the Rank," points out Porter. "In theory, that's 20 to 30 more minutes that I'd have to work while using a tape medium. If a show has four acts, that's 80 minutes of downtime that can be applied to color correction."

The VIP process also takes away the pressure of having to conform the negative to assemble the episode — no mean feat for a show like *Brooklyn South*, which typically has 950 cuts per episode. Though the show does end up with a cut negative, it's an after-airdate event. "If they lock the show on a Friday night, they can assemble it on Monday and I can color-correct on Tuesday and Wednesday," says Porter. "In the negative world, if they locked on Friday, it would take two to three days to cut the negative. It's a whole different scenario with much more stress, and it puts limitations on everyone else down the line, including the online editor and me."

According to Encore Video vice-president Chris Van Duyn, there are too many variables at work to be able to predict how much money can be saved. But in principle, a typical one-hour weekly program could save up to $6,000 per episode, which would add up to $132,000 a season.

There are other advantages to using the VIP process: hanging the film up only once limits opportunities to add scratches and dirt, and all material is rock-solid once it's down on digital tape.

One limitation of the VIP process is the inability to reposition or enlarge images during the tape-to-tape color-correction session. If an errant boom is discovered, the choices are to go back to the negative or create the blow-up in the online edit session. When Buckland needs these effects on *Brooklyn South*, Porter will perform a special transfer session on those segments prior to the tape-to-tape color-correction, and then insert those scenes over the existing material on the DCT tape.

— Debra Kaufman

Policing a New Beat

sees a script the day before he shoots the scenes. The cinematographer tries to prep lighting and stay one step ahead, but he frequently winds up shooting from the hip.

An example of this approach occurred during an episode directed by Watkins, which featured a tense foot chase involving characters weaving through traffic over three or four city blocks. Roe used a Pogo-Cam to show the chase from the viewpoint of one of the cops. When an actor was required to hurdle over a car, Roe decided to show the scene from that perspective. He put a ramp over the car and had his operator run right over the top, parallel to the action. Meanwhile, a second cameraman was covering the scene with a 1000mm lens which offered a totally different point of view — that of a standing pedestrian watching in amazement.

Roe explains that the chase's intensity wasn't spelled out in the script; it just seemed to him to be a natural way to shoot it. He and Watkins spent a few moments talking at lunch, mainly about prepping the next day's work. Roe offered his ideas about the pursuit, and found that Watkins was tuned to the same wavelength.

"I don't think there's a visual style that defines *Brooklyn South*," Roe says. "We try to keep it gritty at times. I use [Panavision's] Primo 11:1 zoom as much as I can. I like the way that lens stacks up, and also the look it renders, especially on close-ups. We do a lot of passing back and forth on shots. We shoot with two cameras 90 percent of the time. It's for coverage, but also for the mood and feel of the scenes."

Rarely does a static shot crop up in *Brooklyn South*. Both cameras are generally moving on dollies and panning from actor to actor. Most of the time, the two cameras are positioned at right angles to each other, making for more challenging lighting and composition. Video taps are

Actors Titus Welliver and Klea Scott take a tough stance on their turf. The show is actually shot on locations in Los Angeles.

utilized to monitor compositions, but Roe lights from the camera.

Watkins maintains that the longer lenses help keep the audience focused on the story, and give the cinematographer more control over the images. Watkins gives Roe free rein to explore scenes and discover what's going on, and the multiple cameras keep the pacing vigorous. When the filmmakers are shooting in the dingy brown and dirty gray precinct lobby, the energy is tactile. Five or six incidental stories often unfold simultaneously.

The team's A-camera is typically assigned to a basic master, while the other camera is used to catch a different angle or cover a character. Although Watkins has tried out different lenses, he says that the 11:1 zoom gives him more choice in terms of lens sizes, as well as the ability to punch in on a close-up at any time. "The widest angle we use is 17mm, and we mostly do that for the opening or closing shot in a scene that's designed to show the audience what the actors are seeing," he says.

Roe believes that good cinematography should be felt and not seen. "When we isolate someone with a long lens, or follow an actor who passes us into a conversation, it only works if we're bringing the audience into something interesting. If you come into a scene at a key moment, when somebody is saying something that encourages the audience to listen, that's when it's magic."

Watkins adds, however, that images can speak as powerfully as words. "If someone is nervous and

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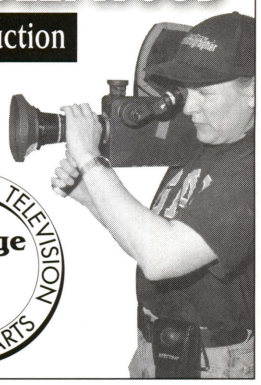

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wiggling their foot, you might isolate the camera on that, or find another clever way to show the audience that the person is tense," he says. "Just one shot like that can change the rhythm of the scene and even the meaning of the dialogue."

The passing camera moves aren't always planned. It is not atypical for a scene to have four pages of dialogue. Roe knows when cues are coming up, and where the director wants the camera, but he also relies on his gut feelings. The B-camera operator usually wears headphones, enabling Roe to point him in a new direction on the spur of the moment. Watkins offers, "An actor may really get into a scene, and subconsciously begin doing something interesting with his hands. Bill notices those things, so he might tell the B-camera operator to come in on the hands."

Watkins observes that at the beginning of the first season, *Brooklyn South* got into a brownish color scheme, reflecting the drabness of the main sets. By the sixth or seventh show, however, the producers and Roe were letting the scripts dictate the look.

Roe lights the monochromatic interior sets mainly with HMIs that emulate daylight streaming through windows. He augments these main sources with a couple of units hidden in niches that are motivated by practical lights. The lighting's look varies from show to show: hard and icy blue one week, and warm and soft the next. "The crew does a great job of being ready for anything," he says. "The main set is basically prelit, but it can change week to week. Some changes happen in post, but take part in that process. I make appearances in the telecine suite, and so does Mike [Watkins] and the editor [Farrel Levy]. There are constant phone conversations."

Roe jots down copious scene-by-scene notes for the colorist in order to describe his intentions, with Watkins frequently adding his own comments. And someone from the production is always present in telecine to ensure that no quality is lost in the film-to-video transfer.

The cinematographer adds that he chose to shoot *Brooklyn South* on Eastman Kodak's 500-speed EXR 5298 film stock due to its broad range of latitude, and the importance of controlling contrast. Roe observes that each kind of emulsion has a distinct set of imaging characteristics. The more information a cameraman has about how each type of film reacts to different lighting and colors, the more flexibility he or she will have.

In addition to its bold visual style, *Brooklyn South* is also staying ahead of the curve by anticipating the future need to broadcast

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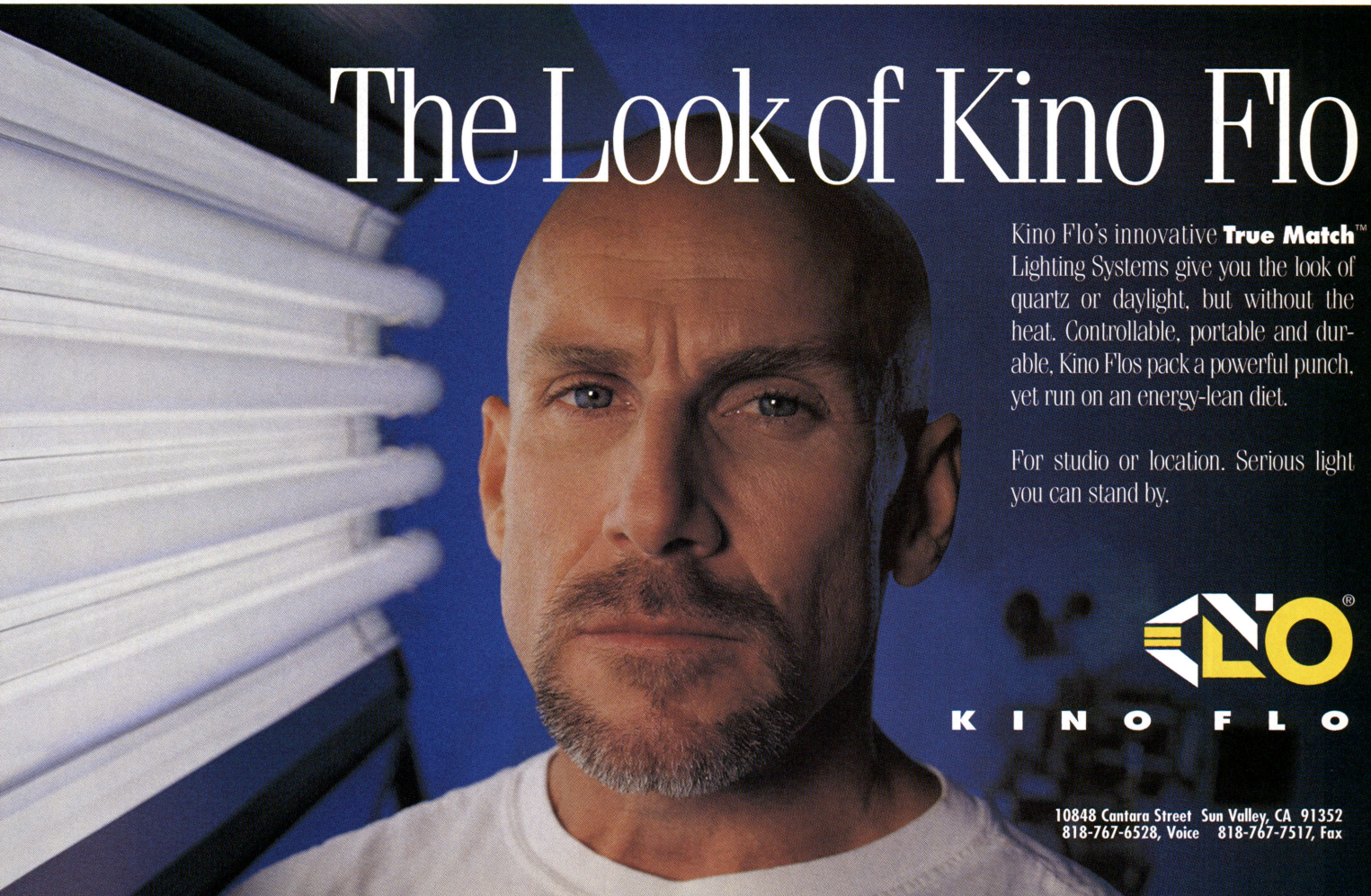
programs in the 16:9 DTV format. Rowe composes images with a common topline and left and right frame edges, but he leaves extra room at the bottom of the frame, using a Panavision ground-glass to show him where the lower edge will be on both 4:3 and 16:9 television screens. "Composition is important to us," says Watkins. "We have a lot of people in a lot of scenes, and we want Bill to use the whole frame from edge to edge. I wish we were shooting widescreen now. It has more of the look and feel of a movie."

Most TV producers who are concerned with how their programs will play in widescreen are composing for 4:3 and simply "protecting" the edges of the frame. Both Watkins and Roe discount the idea that it's possible to compose compelling images for two different forms. "As a camera operator, I always hated the notion that you could 'protect' the edges of the frame," Roe says. "Composition is a big part of what we do to get the audience involved with the story. You lose all of that in films that are going to be panned and scanned."

For Roe, getting off the camera and learning to work with other operators has been an interesting experience. He reserves special praise for Dan Gold, his A-camera operator, while also admitting occasional frustration at his lack of direct camera control. "Sometimes I see how a tiny adjustment can make a real difference," he says. "If you just move the camera a few inches, you can change everything. That comes from deep inside."

In closing, Watkins notes that the director of photography's position is undergoing a transformation. "The cinematographer's role in television has been underrated, but today's producers understand what a good director of photography really brings to the project," he concludes. "The cameraman is the horse. A new director comes in every week to get on the horse and take him for a ride. If you don't have a thoroughbred, you're not going to succeed." ■

Director Marc Buckland (white sweater) and the crew on location in NYC. While there, the show's various directors will each take the helm in order to get the 5 or 6 location-specific shots they need for their respective episodes. Fellow series director Jean deSegonzac observes from behind Buckland. To his right is script supervisor Carol Banker and producer/technical advisor Bill Clark.



Industry Town Embraces Indies

The Los Angeles Independent Film Festival continues to grow and thrive while providing a high-profile showcase for interesting filmic fare.

by Holly Willis

Photos courtesy of Scott Ziehl.

LAIFF Award Winners

In keeping with the festival's community-based spirit, the LAIFF film awards are tallied up from audience ballots. The Indie Supporter Award, however, is accorded to an individual with an exemplary commitment to non-studio moviemaking. Here are this year's honorees.

Best Feature: *Broken Vessels*, directed Scott Ziehl and produced by Roxana Zal

Best Director: Rory Kelley, *Some Girls*

Best Screenwriter: Rocky Collins, *Pants on Fire*

Best Short: *Mad Boy, I'll Blow Your Blues Away… Be Mine*, directed by Adam Collis

Indie Supporter Award: Eric Stoltz

In its fourth year, the Los Angeles Independent Film Festival (LAIFF) solidified itself as a viable venue for the newest in American independent cinema by entrenching its presence in the heart of Hollywood. No longer a fledgling fest, the 1998 LAIFF spread itself amongst sites situated on Sunset Boulevard — the Directors Guild of America headquarters, the art-house Laemmle Sunset 5 theatres, the Laugh Factory and the Harmony Gold Theater. Ever expanding, the five-day event (held from April 16 to 20) embodied a roster of 28 features and 35 shorts. This time around, the LAIFF was ushered in by Susan Styron's pastoral, Civil War-era yarn *Shadrach*, based on the short story by the director's father, William Styron, while the kooky, romantic hijinx of writer/director Noah Baumbach's *Mr. Jealousy* capped the ceremonies. The Artist Rights Foundation also sponsored a special screening of Sydney Pollack's government thriller *Three Days of the Condor* (photographed in Panavision anamorphic by Owen Roizman, ASC), followed by a panel discussion with its creative collaborators. Along with its New Media Forum and Craft Series — intensive seminars in acting, writing, directing and production design — the LAIFF presented the third annual Kodak Close-Up cinematography series,

Opposite page: Responding to an emergency, paramedics Tom (Jason London) and Jimmy (Todd Field) blaze down L.A streets in an actual film frame from *Broken Vessels*. Left: Director Scott Ziehl (in cap), key grip Christian Staab, and cameraman Antonio Calvache prep a shot on location in L.A. as actor Field watches from the background.

with sessions conducted by Victor Kemper, ASC and Amy Vincent (*Eve's Bayou*). Of the entries in this year's LAIFF, the pictures *Broken Vessels* and *Scotch and Milk* boasted especially impressive imagery which belied their less-than-bounteous budgets.

Broken Vessels
Director: Scott Ziehl
Cinematographer: Antonio Calvache

Broken Vessels looks at the gradual descent of two ambulance drivers, Tom (Jason London) and Jimmy (Todd Field), into an increasingly drug-infused world. In shooting this tale — which plays like a cross between *Trainspotting* and the Seventies TV drama *Emergency* — director Scott Ziehl and cinematographer Antonio Calvache had three basic tenets: to convey the protagonists' transformation through progressively stylized imagery; endow scenes with realism and credibility, avoiding the traditional tropes used to visualize drug abuse; and make the numerous ambulance sequences as varied and interesting as possible.

The filmmakers achieved the devolution of the paramedics through the use of two contrasting shooting styles. "Basically we wanted a dual look [which combined] a handheld, documentary style and a more traditional, stately style," explains Ziehl, who directed, co-wrote, and produced the film. "As the story progresses, the camera moves become increasingly frenetic, with more movement and stranger angles."

Calvache, an alumnus of the American Film Institute, also had to create a look for two other types of scenes as well: a series of flashbacks, and several video sequences shot by Tom from the ambulance's passenger seat. The flashbacks were originally slated to be shot in Pennsylvania (the location of Tom's hometown), but the film's budget prohibited the production from moving to the East Coast. "Because there is nothing nearby L.A. that looks like Pennsylvania, we had to forget the realistic approach and substitute the lack of information in the landscape with the increasing emotional effect of the scene, achieved by a visual approach unique to these flashback scenes," explains Calvache. "I had experimented in still photography with a technique I term 'negative diffusion,' which is using diffusion in the printing process from negative to positive, as opposed to diffusion used in the camera during exposure of the negative. I had used it for music videos during telecine, but it gets more complicated with film. We had to use an optical printer, and place a diffusion filter in front of its lens for that same footage. We increased the contrast by using a mix of interpositive and release stocks in the duplicate process." The resulting effect is a series of images that seem simultaneously brilliant and washed-out, like an overwhelming memory that is being painstakingly repressed.

For the video sequences, Calvache utilized a Hi-8 camera. "The first transfer from video to film looked terrible," he says. "It was okay that you could tell it was video — that was the purpose — but the colors were too faded. The main problem with this video footage was that the blacks were really not black."

Ultimately, Calvache managed to beautify the video footage when subjecting the entire film to a silver retention process. "Theoretically, silver retention decreases the amount of color saturation," he says. "However, we used it at a subtle level, so colors were not apparently affected, but a layer of texture was added to the film. This process provided us with a more gritty and thus more real look, a bit like black-and-white. The silver retention added contrast and darkness in the blacks — it made the film look 'stronger.'"

A realistic look was achieved in part through Calvache's use of a lightweight Moviecam SL. "There was not one single day of shooting when I wasn't blessing that camera," he says. "It made the whole production possible because it's so light and so compact. It's almost like a 16mm camera. I also decided to go with that camera all the way — I had considered getting one lightweight camera for the handheld work and one regular camera for the rest of the film, but the good thing about this camera is that you can use an adapter for 1,000' magazines if you want. It's perfect for all kinds of work."

Calvache also opted to employ Kodak's 5279 Vision 500T throughout *Broken Vessels*, rating the stock at a 320 ASA. He says, "Normally, I would use the higher-speed film stock for night exteriors and interiors, and 93 — an emulsion with a finer grain — for the rest. But I

Industry Town Embraces Indies

Hard-up and hooked on heroin, Tom and Jimmy seek some solace from their pal Elizabeth (Roxana Zal) — another actual film frame.

decided to stick with the 5279 to help create a unity of style."

Using this single stock helped the cinematographer in the many situations during which a scene shifted from an afternoon to evening setting. "That can be a problem," the cinematographer says. "I would have had to either start pushing the film or switching stocks, and that's something I didn't want to deal with in *Broken Vessels*. I did push the film for tests, but it became too grainy, and the blacks shifted toward blue. Pushing the stock one stop seemed okay, but if we went beyond that the images would become too muddy and dirty."

To depict the aftereffects of Tom and Jimmy's liberal indulgence in heroin, Calvache chose "to be more straightforward in the sense of not feeling that the camera suddenly becomes dizzy and high with the characters. We wanted to show the characters from a realistic point of view, but at the same time communicate some of what they were going through. I used Otto Nemenz's Swing-and-Tilt lenses, some dutch angles and time-lapse photography, being careful not to let the overall approach become excessive."

Calvache also deployed the Swing-and-Tilt lenses to vary shots of Tom and Jimmy inside the ambulance. "The lens is mounted on bellows, so it's like a large-format view camera used in still photography in which you can control the depth of field by tilting and/or swinging the lens," comments Calvache. "I used it inside the ambulance when I wanted to isolate one character from his environment. The challenge in working with such narrow depth of field is doubled when using Swing-and-Tilt lenses, since the focus is not only affected by the distance from the subject to the camera, but also by its position in the frame. Even if the subject doesn't move, you have to pull focus as you pan or tilt the camera. You can imagine how helpless the first A.C. feels. When shooting for the large screen, it's also scary to have the whole image out of focus except for one piece of a face — an eye or a mouth — so I tried to be extremely careful. As it turned out, I was very happy with the results."

Several of the ambulance interiors were shot handheld; fortunately, the Moviecam's small size and slight poundage enabled Calvache to move around the characters in the tight space, but he still had to be particularly inventive to avoid any sense of repetition. "We always looked for a different angle," he says, "but always with the intention of not becoming self-aware."

For the ambulance driving scenes, Calavache only had one day of access to a camera car, so for the remaining sequences he had gaffer Julio Ribeyro rig an entire lighting system specifically for the ambulance. "He used a power converter out of the battery of the ambulance and he built an electric infrastructure with cables along the inside and outside of the ambulance. For the inside, we would use Kino Flos, and through the windshield some small HMIs, up to 575 watts. These were the only lights we could use with the car's battery." For the night driving scenes, Ribeyro and key grip Christian Staab also fashioned a rig on top of the ambulance. "We had lights outside the windows, and we would re-create the passing lights with dimmers," he explains. "I had my whole crew on the camera car with one dimmer in each hand." In this way, Calvache orchestrated the rising and falling lights to match the passing lights from other cars and from practical street lights.

While shooting daytime driving scenes, Calvache used the reflections of the buildings playing on the ambulance windows. Weeks later, the filmmakers captured documentary footage from an actual ambulance making its daily rounds. "We got shots handheld from the passenger seat going at high speed through the red traffic lights, or of the traffic pulling to our side and people waiting for us on the sidewalk from real ambulance calls. And we had to match this real documentary footage with the scenes we had previously shot in our documentary style approach, so 'the whole' would read as one and real."

Scotch and Milk
Director: Adam Goldberg
Cinematographer: Mark Putnam

In his lovely black-and-white debut feature *Scotch and Milk*, writer/director Adam Goldberg stars as Jim, a desultory hipster so enraptured by the iconography of a bygone era that his entire world has become a moody, scotch-soaked homage. During the course of the story, Goldberg pays tribute to jazz, the French New Wave, American film noir, Orson Welles, Nicholas Roeg and other sensibilities which limn the terrains of lost love, urban angst, and drunken resignation.

Despite the advice of many experienced people in the film world, Goldberg opted to shoot with monochrome stock because *Scotch and Milk* is predicated on a particular, almost elegiac worldview best replicated in black-and-white. "I've always been enamored of black-and-white films on an aesthetic level," he

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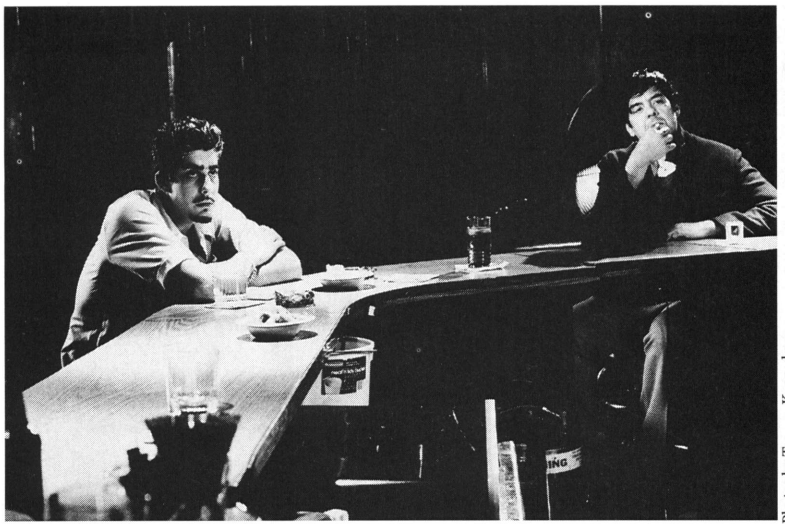


Photos by Tammy Kennedy.

Right: In the monochrome movie *Scotch and Milk*, hipster Jim (writer/director Adam Goldberg, left) wallows in lovelorn melancholy while soliciting sage counsel from The Skipper (Robert Pastorelli). Lower right: After an argument, Jim stands sulking as his lost love Ilsa (Clea Lewis) struts down the Windward Avenue walkway made famous in Orson Welles' *Touch of Evil*.

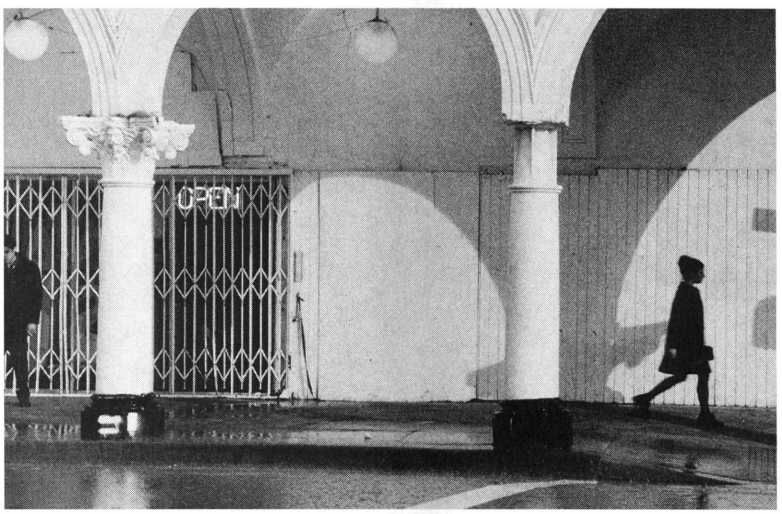
says, "but thematically, that's how these people perceive the world. Shooting this film in color would only have been an attempt to make it easier to sell."

The film's exquisite opening sequence should dissuade those who think black-and-white is not commercially viable. In a montage of close-up shots, a hand, a cigarette, and wisps of smoke are each framed with the lyricism of individual moving portraits. This opening was carefully scripted by Goldberg, and is repeated in a series of wider shots at the end of the film. "We shot the beginning with 50mm and 85mm lenses," explains cameraman Mark Putnam, who used a Panavision Gold camera. "And then for the end of the scene, we went one lens wider. The first time it's very stylish and impressionistic, and the second time it all comes together as you see the whole scene."

Much of the script works in a similar fashion, with the story being told in flashbacks which form a collage of past and present. "The basic construct is not very complex," explains Goldberg. "The idea was to follow a guy through a week in his life, from the point of view of the end of the week." Although the script is nonlinear to some extent, Goldberg played with the structure much more extensively in the editing room. "The way that certain scenes bleed into other scenes, or overlap, was something that I explored further as I discovered how creative the editing process can be." Putnam utilized filters to help distinguish differing times and moods. "We used black ProMist filters on all of the present-tense footage, and then we'd switch to the white ProMist filters in all of the flashback scenes — we wanted each [sequence] to have its own subtle flavor," he says. "We also used old Mitchell diffusion during the love scenes between Jim and Ilsa [Clea Lewis] to create a more romantic feeling. I think people feel the effect rather than seeing it."

The filmmakers began the shoot with their most difficult sequence: the opening shots of Jim riding around in the city in the rain. These shots are intercut throughout *Scotch and Milk*, and form a framework for the film. Putnam and Goldberg did consider several options while planning the effect, but eventually went with rear-screen projection. "We thought that would be great because the technology would give the sequence this old Forties look," says Putnam. "But for the crew it was a 27-hour day. It was tough because we were all just getting to know each other, and the crew had no idea what to expect. Adds Goldberg in retrospect, "At the end of the day, in a state of total delirium, I had to make this inspiring speech to everyone to keep them from walking away."

An equally difficult task was locating a site suitable for the apartment building where Jim and his equally disaffected buddies live and hang out at a downstairs bar. The filmmakers eventually settled on the Alexandria Hotel. "The building is U-shaped, so we could set lights outside the window on the roof," says Putnam. "During the day we used a lot of reflectors because we didn't have lights bright enough to compete with the outside, and at night we'd switch over to HMIs. We were lucky — we ended up with the best possible location."



Putnam did have to make do, however, with a small donated lighting package. "We had a few HMIs, two 2500 Fresnels, and a 4K Par for a couple of nights," says the cameraman. "But for the most part we used a small tungsten package, and we always had to think of the simplest way to shoot things."

Interesting camera blocking came to bear during a performance by jazz veteran Jimmy Scott as he crooned "Sometimes I Feel Like a Motherless Child." Goldberg, a big fan of Scott's, wrote the scene hoping for the best, and was pleasantly surprised when the septuagenarian Scott agreed to come to L.A. He agreed to sing the song twice, live, so Putnam couldn't afford to make any errors while capturing the footage. The cinematographer explains, "We turned the stage sideways, and then added lights in the back to make the setting more dramatic. We had two cameras: we set up one as a stationary 'safety' unit, covering the shot with a wide-angle lens, and kept the other camera moving on a dolly. We listened to the music and tried to pace the tracking."

The film's most elaborate sequence is an argument between Jim and Ilsa, which occurs in the pouring rain among the columns on Venice, California's Windward Avenue, a location made famous in Orson Welles' *Touch of Evil*. "We had a Highlight, which is a truck with two 12Ks on it," says Putnam. "In the script, the scene takes place in a heavy downpour, which is one of things that originally excited me. However, the reality of having two actors in the rain for eight hours trying to do this emotional scene made us rethink our approach. We decided to put them under the roof over the sidewalk to give them some shelter."

Creating the mood-enhancing rainfall was also problematic. "In the tight shots, it was no problem, because we had a rain tower. In the opening shot, though, the characters walk across the street. We decided to have it start raining once the sequence got going." Putnam continues, "We had three cameras that night — one on a Louma Crane, one on a Steadicam, and another on a dolly or on sticks. We had so much to do; it was summer, so the night was short, and we knew that if we had to keep switching the camera to different rigs, we'd never get through the sequence."

The night scenes were also tough because of the stock Putnam was using. "You don't have much choice when you shoot in black-and-white," he says. "With Kodak, you either have the 50 ASA or the 200 ASA, so that was the hardest thing. Shooting color negative on a low-budget film, you're usually on 5298 or 96 at an ASA of 500, but we

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Playing himself, septuagenarian jazz great Jimmy Scott belts out a rendition of the tune "Sometimes I Feel Like A Motherless Child."

were shooting with 5222 — and then 5231 for the day exteriors — so we usually only had an ASA of 200. That meant we had to get enough light out there at night to get a decent stop. One of my biggest concerns was giving the first A.C. enough room to work; we were using MKII Ultra-Speed primes, but I didn't want to be shooting a lot of things at T1.3 because even the best assistant needs some leeway. We usually shot at around 2.8. I'd look at the A.C., Bobby Truitt, who did an amazing job, and say, 'Can I open up a third of a stop on this one?' and he'd either say yes or no. We had a great relationship that way."

One of the film's most visually striking scenes takes place in daylight beneath the Santa Monica Pier, where the friends cavort together. The dark posts and the actors' black clothes contrast beautifully with the bright, misty light beyond the pier. Putnam explains how he got these challenging shots: "We didn't have any lights, so we used reflectors, and the sequence is really just a result of the [exposure] difference: it was about a T3.2 outside, and under the pier it was a 2.8. We really had to stretch the limits, because outside we had this glowing, unreal light, and what we wanted was the contrast with the sky and the water in the background." Putnam certainly achieved that contrast — the ethereal scene is one of the film's most stunning moments, and makes a more than convincing case for the efficacy, and beauty, of black-and-white stocks. ■

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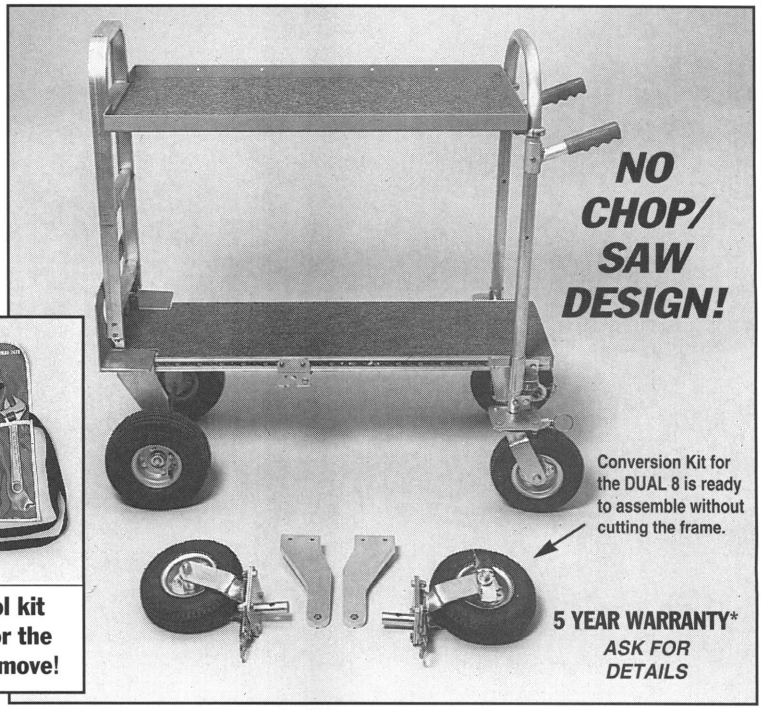

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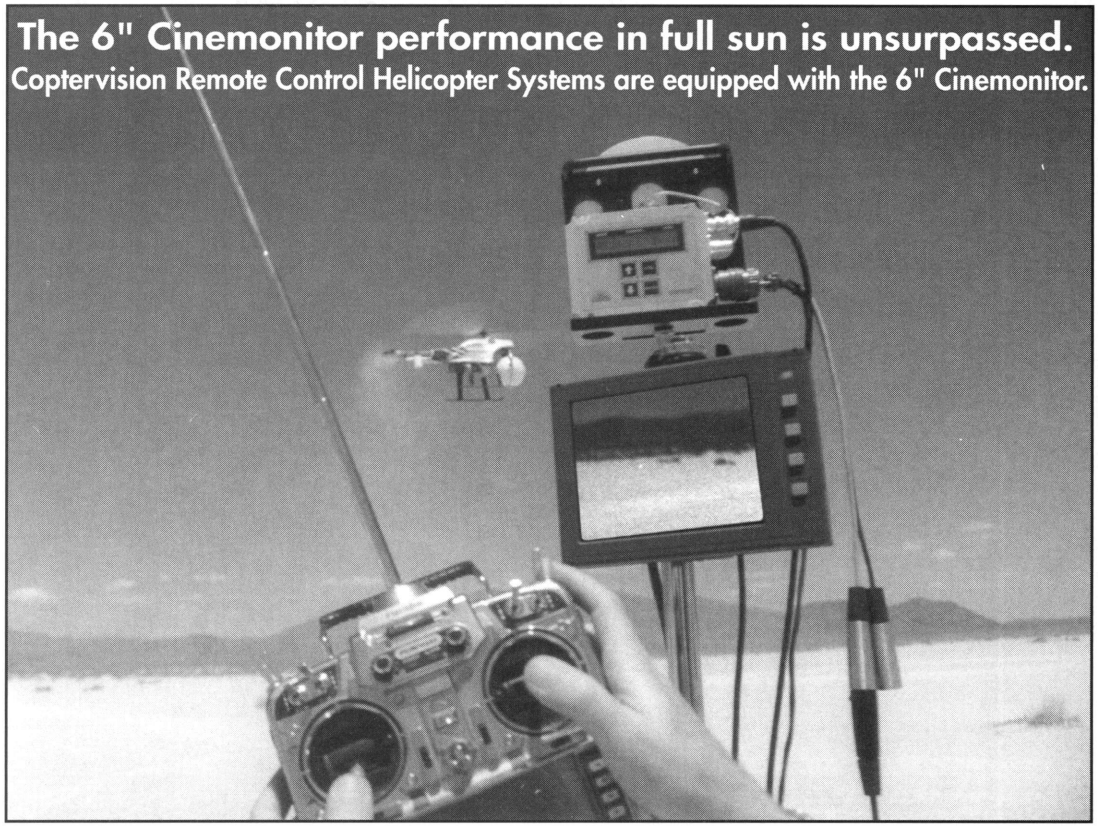

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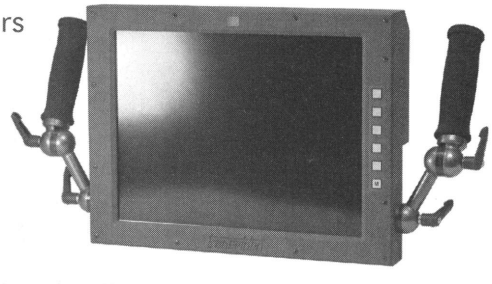

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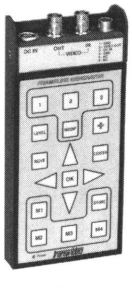

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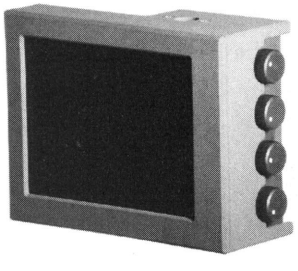

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Heart of Darkness

Humphrey Bogart cast himself in a different light with *In a Lonely Place,* a noir gem directed by Nicholas Ray and photographed by Burnett Guffey, ASC.

by George E. Turner

For years, Humphrey Bogart carried on a running feud with his boss, Jack L. Warner, chief executive of Warner Bros. Pictures, Inc. This clash of titans led to the Columbia production *In a Lonely Place,* one of the finest pictures the actor made on a different backlot.

Bogart had an enviable situation at Warners. By 1947, after almost a dozen years under contract, the studio had built him into a major star and, at $400,000 per year, the industry's highest-paid actor. He was, however, something of a stormy petrel who protested most of his assignments and referred to Warner as "the creep." Bogart was determined to break away, so with his business manager, A. Morgan Maree, he formed a company to make one picture a year for the recently established Mark Hellinger Productions.

Some of Bogart's better Warner pictures, including *They Drive By Night* and *High Sierra,* were produced by Hellinger, a husky, hard-living ex-crime reporter, war correspondent, newspaper columnist and radio personality who had a knack for making successful hard-boiled crime dramas. After leaving Warners and starting his own company, he had made *The Killers, Brute Force, Swell Guy* and *Naked City* for Universal.

Bogart's deal with Hellinger ended abruptly on December 21, 1947, when the producer died of a heart attack at the age of 44. He and Maree then formed a partnership with writer-producer Robert Lord to purchase Hellinger's stock and film properties. On April 12, 1948, they officially established Santana Productions. The new company, named after Bogart's beloved yacht, was headquartered at Columbia Studio in Hollywood. Columbia contracted to release the company's pictures and agreed to provide studio facilities for 25 percent of production costs.

Santana made five features in six years, all starring Bogart. The first was *Knock on Any Door,* for which a talented but rebellious young director Nicholas Ray was borrowed from RKO-Radio in a deal which included an option for a second production. The picture, which got underway in August 1948, starred Bogart and introduced young John Derek. Ray was keyed-up and nervous on the set, worrying himself sick over each day's work and seeking solace in alcohol and drugs. Bogart thought at first that Ray was crazy, but soon found

Opposite: Mildred (Martha Stewart) has misgivings after Steele (Humphrey Bogart) has brought her to his apartment. This page, left: Dix and Laurel (Gloria Grahame) share a happy moment. Below: Hadda Brooks sings "I Hadn't Anyone Till You."

that they had much in common.

Santana exercised its option to borrow Ray for their fourth and finest production, *In a Lonely Place,* based on a novel by Dorothy B. Hughes, a leading mystery writer and a literary critic for the *Los Angeles Times.* The story concerns Dixon Steele, a young, war-battered serial killer who preys on women in the Santa Monica area. By the time the tale had been adapted by Edmund H. North and scripted by Andrew Solt, it had undergone drastic revisions and was given the working title of *Behind This Mask.* It had become a Hollywood story in which screenwriter Steele was not a murderer *yet.* Solt called him a "portrait of a future killer." The role was no longer suitable for the smooth-faced Derek, demanding a cynical, middle-aged man with a lived-in face — in other words, Bogart.

In his program notes for a 1982 American Film Institute screening, Solt admitted that he was initially worried about Bogart being both star and boss. "I'd had previous experience with star-producers. In the final stage, it was always the star whose personal interests had to be served… 'But before you start the screenplay,' [Bogart] said, 'I have one very important request. Something I absolutely insist upon.' Here it comes, my inner voice said to me. The star's request that will ruin the whole thing… Then he told me about an old actor friend who was very nice to him when he first started on Broadway… 'Now he is out here, struggling, living on canned beans, too proud to accept my help. I want you to write him a part in the picture… one that will give him a few weeks' work.'" Thus was the character of Charlie Waterman, a down-and-out thespian, written into the script.

The old actor was Robert Warwick, star of the 1922 John Colton and Daisy Andrews play *Drifting,* in which the nervous young Bogart had a supporting role. At that time, Warwick was a movie headliner as well, starring for several of the East Coast companies. Although he had a superb voice, he had been reduced to supporting roles by 1931, when he appeared in Fox Films' George O'Brien Western *A Holy Terror.* Again he was helpful to young Bogart, who played a villainous ranch foreman. Warwick was actually working steadily in Hollywood at the time of *In a Lonely Place,* but only in minor roles.

The role of Bogart's lover was intended for his wife, Lauren Bacall, who had been teamed with him with great success at Warner Bros. in her first movie, *To Have and Have Not* (1945), and then in *The Big Sleep*

Heart of Darkness

Thanks to Laurel's influence, Dix is able to write again.

(1946). She was under contract to Warners and it is not difficult to imagine the satisfaction Jack Warner must have derived from refusing to loan Mrs. Bogart to her own husband. Conceding that Warner had won this round, Bogart sought out Ginger Rogers for the part. She was willing, but Ray couldn't imagine her in the role and argued against it.

In 1948, Ray had married a blonde actress with an ability to project the sex appeal and smart-mouthed insolence that had worked so well with Bacall. She was Gloria Grahame, as eccentric and talented as her husband and also under contract to RKO-Radio. Ray made a good case that she was right for the part, but Howard Hughes, then owner of RKO, balked at loaning her out. Harry Cohn, president and production chief of Columbia, intervened and talked Hughes into making a deal. Grahame was loaned to Santana for $3,750 a week with an eight-week guarantee.

The Ray marriage was coming apart by the time production commenced at Columbia on October 25, 1949. The Rays managed to keep it a secret, knowing that if the producers suspected the truth the actress would be replaced.

The production crew was made up of Columbia contractees, with the exception of composer George Anthiel, a prolific symphonist who only occasionally ventured into film scoring, and Rod Amateau, a pal of Ray's who is listed as technical advisor. Amateau, who later became a director, was actually an all-around assistant to Ray during production.

The cinematographer, Burnett Guffey, ASC, had been an outstanding second cameraman for 20 years, working anonymously on such pictures as John Ford's *The Iron Horse* (1924) and *The Informer* (1934), and Alfred Hitchcock's *Foreign Correspondent* (1940). After filming *Cover Girl* (1944) at Columbia, he was designated a director of photography, and for three years did superior work for the studio's "B" program. His expertise with mystery lighting on *Soul of a Monster* (1944), *I Love a Mystery* and *My Name is Julia Ross* (both 1945), *Night Editor* and *So Dark the Night* (both 1946) elevated him into the "A" category. Even then his most eye-catching work in 1947 and '48 was for moody films such as *Framed, Johnny O'Clock* and *The Sign of the Ram.* He did fine work for Santana's *Knock on Any Door,* and returned for *In a Lonely Place.* Ahead of him lay many top-of-the-line pictures, including his Academy-Award winners, *From Here to Eternity* (1953) and *Bonnie and Clyde* (1967).

Anthiel, who titled his autobiography *The Bad Boy of Music,* was a student of Ernst Bloch. His compositions include six symphonies, an opera, a piano concerto, several quartets, piano and violin sonatas, several ballet scores, and numerous smaller works. He had written a half-dozen movie scores, including a fine rhapsody of cowboy themes for C.B. DeMille's *The Plainsman* (1937) and the ballet music for *Spectre of the Rose* (1946). He was a colorful Hollywood character who, in his spare time, was a practicing psychoanalyst.

In its basic narrative outline, *In a Lonely Place* is quite uncomplicated; the film's complexities lie in its characterizations and dialogue. Following a nightclub brawl, Dixon Steele (Bogart), a mercurial screenwriter whose renown has faded since his return from combat in World War II, brings hat check girl Mildred Atkinson (Martha Stewart) to his home to tell him the story of a terrible popular novel he has been asked to adapt. His neighbor in a patio apartment, unsuccessful actress Laurel Grey (Grahame), sees the girl leave, but the next morning, Mildred's body is found in Benedict Canyon. Investigators determine that she'd been thrown from a moving car after having her throat crushed in the grip of a man's arm.

Laurel is able to furnish an alibi for Dix. Police Captain Lochner (Carl Benton Reid) is convinced of Dix's guilt, but Detective Brub Nicolai (Frank Lovejoy), Dix's war buddy, thinks otherwise. Dix and Laurel fall in love, and she begins typing his screenplay. Their idyllic relationship begins to crumble as she experiences his violent temper. She soon realizes that he *is* capable of murder, and her fears are amplified when she learns that Detective Nicolai's wife (Jeff Donnell) is afraid

of Steele. When Laurel attempts to run away the night before they are to be married, Dix begins strangling her. He is interrupted by the telephone; it is Nicolai, notifying him that Mildred's murderer has confessed. Dix, knowing he has lost Laurel, walks out of her life. (In the original version of the film, Laurel was killed, but this scene was reshot.)

Bogart's performance is at least equal to his work in more popular films such as *The Maltese Falcon* and *Casablanca.* His Dixon Steele is arrogant, caustic, bitter and aggressive. No other actor could project rage and the potential for violence more convincingly than Bogart. Even his love scenes have a threatening quality as his hands caress the face and neck of his sweetheart. His sense of humor is dark: "I could never throw a lovely body from a moving car — it would offend my artistic sense." These qualities are made more real by the equally well-played moments of tenderness with Grahame, as well as scenes illustrating the character's fondness for his agent, Mel, and solicitous concern for Charlie Waterman, who is shunned by everyone else.

There is a strong, relentless buildup to the idea that Steele is capable of murder. The picture's opening optical titles show his rather ferocious eyes reflected in the rear-view mirror of his car as it drives down night-lit streets. At a traffic light, a convertible pulls up alongside, revealing a glamorous blonde actress riding with an ugly man. A former girlfriend, she speaks to Dix, whereupon the man snarls at Dix to leave his wife alone. Dix tells the blonde that she shouldn't have married the fat slob no matter how much money he has. The man tells him to pull over to the curb. Steele leaps furiously into the street and barks "Why not right here?" The man speeds away. (The scene offers a moment of genuine Hollywood melancholia: the unbilled bit-actress is June Vincent, who had been the acclaimed star of Universal's *Black Angel* just four years earlier.)

Steele soon arrives at a night-club where he calls a famous director a popcorn salesman and beats up an obnoxious second-generation studio exec who has insulted Waterman. For a while we are allowed to see the better side of Steele, but his dark self emerges again when, at a night beach party with the Nicolais, he gleefully describes how Mildred's murder must have happened. Then, upon learning he is still a suspect, he takes Laurel on a terrifying nocturnal ride over Mulholland Drive that culminates in a fender-bender with a college boy. Steele beats the youth unconscious at roadside, but Laurel intervenes when Dixon picks up a large rock. Eventually, he angrily strikes the worshipful Mel, breaking his glasses and cutting his face, and ultimately comes close to choking Laurel to death.

Lauren Bacall undoubtedly would have been a memorable Laurel, but Grahame also proved an excellent foil for Bogart, with her coolness standing in fine dramatic contrast to his nervous energy. Grahame was actually a more realistic, down-to-earth performer than the glamorous Bacall, a definite advantage in selling a hard-edged Hollywood story. She reminds one of Bacall when she dodges Dix's kiss after telling him she that she likes his face, remarking, "I said I liked it. I didn't say I wanted to kiss it."

There is sturdy support from Lovejoy and Jeff Donnell, who plays his frightened wife. Both continued to do well in movies and even better on television. Carl Benton Reid (without his trademark mustache) is convincing as a relentless nemesis. In some tense scenes with Grahame, Reid's close-ups are lit to give him an almost satanic appearance, with eyes and lower face veiled in deep shadows.

RCA recording artist and ex-

Above left: Charlie Waterman (Robert Warwick) admires Laurel's ring at the tragic engagement party. Mel (Art Smith) and the bartender (Cosmo Sardo) approve. Below: Gentle moments like this offer relief from the often tense action of the film.

Heart of Darkness

A memorable pairing: Humphrey Bogart as the enigmatic Dixon Steele, and Gloria Grahame as Laurel Grey.

Broadway dancer Martha Stewart does a neat job of setting forth the pretty and hopelessly naive murder victim who describes an epic as "a picture that's real long and has a lot of things going on." Adding to the ambience with expert performances are Morris Ankrum as a crass but successful director, and Steve Geray as the proprietor of a Sunset Strip nightclub. The nightspot's real owner, Mike Romanoff, appears in a bit part.

In a key piano bar sequence, the lovely, deep-voiced Hadda Brooks plays and sings "I Hadn't Anyone Till You," a good number written for the occasion by British-born bandleader Ray Noble. Brooks recalled that Ray became angry because of her difficulty in lip-syncing the song, which she had recorded separately. (The problem shows in the close-ups.)

Art Smith is touching as Dix's gentle, protective agent, a role said to be based on film executive and agent Sam Jaffe. It is he alone who really understands his client. An active Communist, Smith later was blacklisted following the infamous HUAC hearings.

A real asset is Robert Warwick's perfect portrayal of an alcoholic ex-star who maintains his dignity even while tottering about in a drunken stupor. The tall, long-neglected actor is superb in the role, which displays his deeply rich Shakespearean voice as well as a marvelous range of body language and facial expression. The mutual respect between Bogart and Warwick is evident in their scenes together, which do much to impart a warm dimension to the character of Steele.

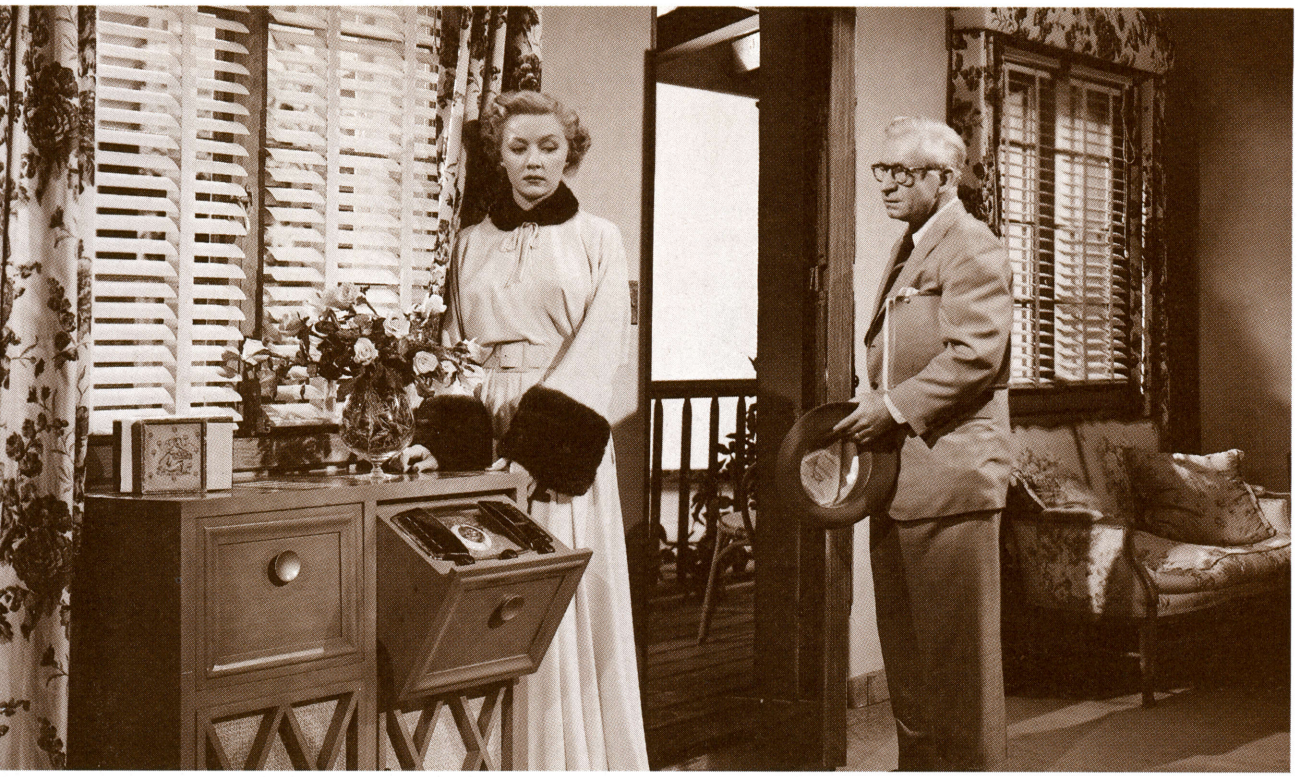
A strange scene is one in which Laurel is being given a massage by a grim, large woman named Martha, who says "Now turn over" as the scene opens. Laurel settles down, face close to the camera, her chin resting on her arms, while Martha hovers above her eerily. The low camera angle keeps Laurel's body out of sight. Martha is as explicit a lesbian as the censors of the time would permit. Trying to pry Laurel away from Steele, the masseuse mentions his former lover, Frances Randolph (played by Alice Talton): "I used to take care of her… He beat her up, broke her nose… Someday you'll realize who your friend is. I only hope it isn't too late, because this isn't going to be as easy to get out of as it was with Mr. Baker… You'll beg me to come back when you're in trouble — and you will, angel, because you don't have anybody else."

Nicholas Ray and Gloria Grahame separated in November, about halfway through production, just as the climactic murder scene was scheduled to be filmed (out of continuity). Realizing that Bogart and Lord would be horrified at the effect this could have on their picture, Ray pretended that he needed to sleep in a dressing room for the remainder of production so he could work late on preparation. Grahame cooperated fully in the charade, and no one suspected that their marriage was on the rocks.

Amid this tense atmosphere, the murder sequence was filmed as it was originally written, beginning on November 15. When Dix realizes that Laurel is about to run away, he pushes her into the bedroom and onto the bed. The next morning, Dix is hunched over the typewriter. The cleaning woman, the masseuse and a delivery man all arrive and go past Dix into the bedroom. Somebody screams. Brub Nicolai and some policemen arrive a bit later. Dix says, "Just a second, Brub. I'm finished." Brub finds Laurel's corpse in the bedroom. He takes the paper out of the typewriter and reads the last lines of Dix's script, words Dix had spoken to Laurel earlier:

I was born when she kissed me,
I died when she left me,
I lived a few weeks
when she loved me.

Ray, under the stress of his own situation, was horrified at the scene he had helped to write. When it had been completed, he sent most of the personnel away and reshot the last part of the sequence. In this partly rewritten, partly improvised version, Dix is strangling Laurel when he is stopped by the ringing of the telephone. (Or is he? Actually, he appears to wilt an instant before the phone rings.) It is Brub reporting that Henry Kesler (Jack Reynolds), Mildred's sweetheart, has confessed to her murder and tried to commit suicide. (The killer's name is also that of the associate producer.) Lochner takes the phone and begins to apolo-



Mel tells Laurel that "you've got to take it all, the bad with the good."

gize. Dix, emotionally destroyed, hands the telephone to Laurel, saying, "A man wants to apologize to you." She listens and replies, "Yesterday this would have meant so much to us. Now it doesn't matter. It doesn't matter at all." In extreme close-up, as she watches Steele go down the stairs, Laurel murmurs tearfully, "I lived a few weeks while you loved me. Goodbye, Dix." The picture fades on a high angle of Dix walking desolately across the patio.

Lord and Bogart looked at both versions, decided they preferred Ray's revised ending, and retained it in the final cut.

Burnett Guffey's photography is more subtle than his work on previous film noir pictures. There is less heavy shadow-play, as well as fewer hard-lit close-ups and low camera angles. The picture's "normal" scenes are also rendered in a more naturalistic lighting, a look that differs little from the style favored for light romantic movies. The film is made up entirely of carefully designed scenes with little camera movement to alter the compositions, few moves by the actors, no fancy crane or dolly shots, and only an occasional pan to follow action. The compositions have an almost subliminal effect, becoming increasingly claustrophobic as the story develops. These shots mirror Laurel's fears and her sense of being trapped in cars and small rooms, or imprisoned by the alternately loving and menacing hands of Dix and the hovering attentions of Martha and Lochner.

Guffey admirably catches the gray look of dawn in Beverly Hills when Dix leaves the police station (where else is there a police building that looks like the Taj Mahal?) and walks the streets. The scenes have a magical quality reminiscent of the celebrated early morning sequence photographed by John Seitz, ASC in *The Lost Weekend* (1946). Good use is made of projection process in the automobile scenes.

Anthiel's music adds considerably to the atmosphere of fear that permeates the film. Most of it is based on a smooth, basically neutral motif that sometimes gives way to a beautiful, bittersweet love theme. The latter is introduced meaningfully when Dix and Mildred are talking in the patio between the apartments. As Laurel enters and walks between them, the love theme rises, effectively marking the end of any plans Dix might have had for Mildred. It is a key moment of the film, thanks largely to Antheil. The two themes are sometimes combined and enlarged upon for various dramatic effects, most notably as a terrifying accompaniment for the wild ride over Mulholland Drive.

To appreciate *In a Lonely Place,* it is necessary to gain some understanding of the enigmatic Steele. Most of us know someone rather like him: a person who is generally disliked or even feared, but is understood and defended by a few real friends. The long-suffering Mel expresses it well when Laurel tells him that "Dix doesn't act like a normal person… I'm scared of him, I don't trust him… Why can't he be

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like other people?"

Mel explodes angrily: "Like other people! Would you have liked him if he was like everybody else? You knew he was always dynamite! He's Dixon Steele, and if you want him you've got to take it all, the bad with the good!" ■

Credits

A Columbia *picture; a* Santana *production; directed by* Nicholas Ray; *produced by* Robert Lord; *associate producer,* Henry S. Kesler; *screenplay by* Andrew Solt, *adapted by* Edmund H. North *from the novel by* Dorothy B. Hughes; *director of photography,* Burnett Guffey, ASC; *musical score,* George Anthiel; *musical director,* Morris W. Stoloff; *art director,* Robert Peterson; *set decorations,* William Kiernan; *film editor,* Viola Lawrence; *sound,* Howard Fogetti; *costumes,* Jean Louis; *makeup artist,* Clay Campbell; *hair stylist,* Helen Hunt; *technical advisor,* Rodney Amateau; *assistant director,* Earl Bellamy; *special effects,* Don Glouner, ASC; *operative cameraman,* Gert Anderson, ASC; *gaffer,* William Johnson; *grip,* Walter Meins; *still photographer,* Irving Lippman; *script supervisor,* Charlsie Bryant; *song, "I Hadn't Anyone Till You," words and music by* Ray Noble; Western Electric *recording. Running time, 94 minutes;. Released May 17, 1950.*

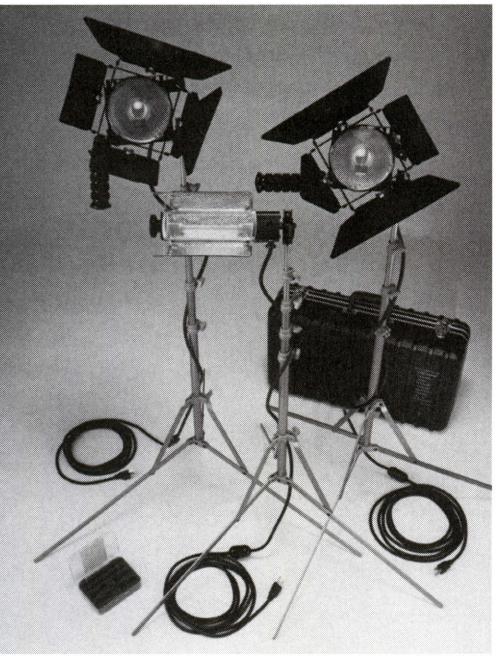
Dixon Steele, Humphrey Bogart; *Laurel Gray,* Gloria Grahame; *Brub Nicolai,* Frank Lovejoy; *Captain Lochner,* Carl Benton Reid; *Mel Lippman,* Art Smith; *Sylvia Nicolai,* Jeff Donnell; *Mildred Atkinson,* Martha Stewart; *Charlie Waterman,* Robert Warwick; *Lloyd Barnes,* Morris Ankrum; *Ted Barton,* William Ching; *Paul,* Steven Geray; *Singer,* Hadda Brooks; *Frances Randolph,* Alice Talton; *Henry Kesler,* Jack Reynolds; *Effie,* Ruth Warren; *Martha,* Ruth Gillette; *Swan,* Guy Beach; *Junior,* Lewis Howard; *Mike,* Mike Romanoff; *Joe,* Arno Frey; *Second Hat Check Girl,* Pat Barton; *Bartender,* Cosmo Sardo; *Young Driver,* Don Hamin; *Waiter,* George Davis; *Young Boy,* Billy Gray; *Tough Girl,* Melinda Erickson; *Officer,* Jack Jahries; *Dr. Richards,* David Bond; *Post Office Clerk,* Myron Healey; *Airline Clerk,* Robert Lowell; *Actress,* June Vincent; *Her Husband,* Charles Cane; *Janitor,* Robert Davis; *Bits:* Frank Marlowe, John Mitchum, Tony Layng, Laura K. Brooks, Jack Santoro, Evelyn Underwood, Allen Pinson, Oliver Cross.

New Products

compiled by Michele Lowery and Andrew O. Thompson

Lowel Illuminations

Lowel-Light Manufacturing introduces a new portable Lowel Dimmer. Available in two models (LD-10 & LD-20), both units sport the following features: four storable, variable light level settings; storable, variable rate and intensity



"flicker" function for special effects; optional wireless remote that can control up to 10 dimmer units; no filament hum during dimming; mounts to Lowel light-stand struts; dimmer units can be locked together in multiples; and DMX 512 lighting control protocol (Model LD-20 only).

Lowel also introduces GO Kits. Small and compact, they combine new GO cases with the newly designed Unistand (taller, with wider base and smaller collapsed length than the ViP stand). All of the GO Kits are small enough to travel as carry-on luggage.

Of the eight GO Kits, four are ViP (Pro & V-light) combinations, and four are Total/Omni combinations. These compact kits are quite suitable for today's new breed of smaller, lighter cameras.

Lowel-Light Manufacturing, (800) 334-3426, fax (718) 921-0303, e-mail: info@lowel.com

Going for Gobos

The Double Gobo Rotator is an option for designers who want to reproduce an animated, kinetic effect. It allows for the rotation of any two Rosco "B"-size gobos, in the same or opposite directions, and at the same or differing rates of speed. Image glass patterns are B-size and fit the Iris slot holders for Source Four ellipsoidal fixtures — they are available in patterns of flower, lined, plume, light plume, and two variations of pebble. More colorful versions are offered in the following shades: blue and lavender; amber and red; red, blue and lavender; green, blue and lavender; blue, yellow and lavender; blue and green; red, lavender and yellow; blue and yellow; cool; warm; and fireworks. A one-color Spectrumgobo is an image design that includes one color and clear; it's most efficient if one uses one of the 24 Rosco Permacolors, but custom colors are also possible. Two color Spectrumgobos use up to two Rosco Permacolor (or custom) colors and clear in the image. Black or gray-tone is considered a color.

Rosco, (213) 462-2233, fax (213) 462-3338, website: www.rosco.com.

Stanton Steadicam System

Stanton Video Services, Inc. has introduced the Jimmy Jib Lite, a new, lightweight, remote jib arm designed to meet the demands of lighter-weight cameras. The Jib Lite can handle cameras up to 15 lbs. (6.8 kg) at the maximum reach of 18' (5.4m), but can also be reduced to a 12' (3.6m) or 6' (1.8m) length. At the 18' size, the system weighs only 65 lbs. (29 kg) and breaks down to a 3½' (1m)-long package. The same remote system that powers the pan/tilt head on the larger Triangle Jimmy Jib is also utilized on the new Lite unit; its features include adjustable ramping, joystick and zoom sensitivity control, camera start/stop, AC/DC operation and Stanton's Propriety Quiet Drive gear motors.

Stanton Video Services Inc., (602) 493-9505, fax (602) 493-2468, e-mail: jimjib@goodnet.com.

Full Range of Focal Lengths

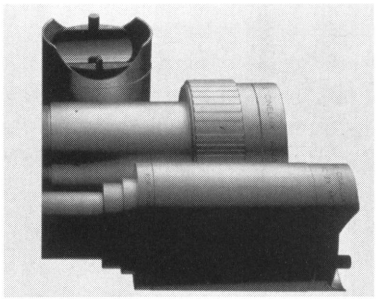
Schneider Optics has announced the introduction of 11 short focal-length sizes. These lenses were added to better meet the need for high-performance wide-angle projection lenses, by cinemas utilizing stadium seating. By offering lenses from 24mm to 60mm in 2mm and 2.5mm increments, Schneider has facilitated the projection of image size needed for virtually any screen, including those in the latest stadium seating venues.

The additional new sizes give theater designers increased flexibility in finding the lens to fit their theater specifications, eliminating the need for image-degrading screen overfill and then masking the excess projected picture. For ultra-wide performance, Schneider's new Super-Cinelux 24mm projection lens delivers a high-quality image.

As well as their line of 35mm and 70mm film projection lenses (extending to 180mm in focal length), Schneider Super-Cinelux 35mm projection lenses are now available in the following sizes: 24mm, 26mm, 30mm, 32.5mm, 35mm, 37.5mm, 40mm, 42.5mm, 45mm, 47.5mm, 50mm, 52.5mm, 55mm, 57.5mm, 60mm (all are f2). In addition, Schneider Optics also offers a broad line

of anamorphic lenses, magnifiers, minimizers and converters.

To assist in the selection of the right Super-Cinelux projection lens for any theater, Schneider Optics offers their free Theater Design Pro software. This



software program lets you evaluate all of the factors that effect film projection quality; the software then recommends the specific Super-Cinelux lens that will maximize screen utilization and image quality in any theater.

Schneider Optics, (516) 761-5000, fax (516) 761-5090, e-mail: info@schneideroptics.com.

New Fluid Head

Cartoni announces the heavy-duty Omega fluid head. The Omega's patented counterbalance and drag systems accommodate heavy camera payloads up to 100 kg. (220 lbs.) at any angle from 90 degrees to -90 degrees. The Omega Fluid Head's drag system provides a wide range of drag effect, from freewheeling to extra-strength. Its ergonomic controls with numerical reference have been designed to make the

friction-free damping easy to set to the desired intensity.

The camera is secured to a standard camera plate interfacing with Omega's quick-release slide plate or, for extra-heavy payloads, to a standard video wedge plate. The fluid head's Mitchell flatbase interfaces with all flat base tripods, mounts, cranes, or pedestals. The Omega features an illuminated bubble level, safety lock on the camera plate, and four-position front/rear bar attachments. All moving mechanisms are sealed for dust and moisture protection.

Cartoni USA, (888) 227-8664, fax (805) 520-6949, e-mail: cartoniusa @aol.com.

Digital Reversible Wide-Angle Adapter & Ultra Fisheye

Century Precision Optics introduces two additions to the Digital Series. This family of products was created for use with digital camcorders with small lens-front diameters, as well as other small palmcorders and camcorders such as the Panasonic AGE-Z1.

The Digital Series .55x Reversible Wide-Angle Adapter is a dual purpose lens accessory. When attached to the front lens in one direction, the .55x performs in the same fashion as Century's other wide angle adapters — offering a wider angle of view with minimal distortion. When used with the Sony DCR VX-1000, the .55x provides a horizontal viewing angle of 73 degrees (93 degrees measured diagonally).

Simply reversing the .55x transforms this accessory into a fisheye adapter that provides a wide-angle view with a pronounced degree of barrel distortion. When used as a fisheye adapter on the Sony DCR VX-1000, the .55x offers a horizontal viewing angle of 92 degrees and a diagonal angle of 115 degrees.

The new Digital series .3x Ultra Fisheye Adapter provides an extremely wide angle of view and a high degree of barrel distortion. Like other fisheye adapters, the .3x Ultra Fisheye exaggerates depth by pulling nearby objects closer and causing distant objects to recede in the background. On the Sony DCR VX-1000, the .3x Ultra Fisheye Adapter yields a horizontal viewing angle of 145 degrees and a diagonal angle of 180 degrees.

Century's Digital Series .55x Reversible Wide-Angle Adapter and .3x Ultra Fisheye Adapter come with bayonet-style mounts to connect to Sony DCR VX-1000 and DSR200 lenses; both are available in 58mm thread versions. All Digital Series products feature precision construction, multi-coated glass elements and aluminum alloy housings.

Century Precision Optics, (818) 766-3715, fax (818) 505-9865, website: www.centuryoptics.com.

Expanded Video Tripod Head Range

The new Manfrotto 510-10 Pro Video tripod head can support cameras weighing between 14 and 23 lbs., and complements the original 510 head, which in itself provides support to cameras in an 8.8 to 19 lb. range. Both the 510 and the 510-10 provide and advanced three-step drag system for smooth 360 degree pans, and +75 degree to -70 degree tilt controls along with smooth stops and starts. A return to center variable balance spring adjustment allows for fingertip control at all times. These professional-quality heads come with a large camera platform incorporating a leveling bubble and a quick-release plate with both ⅜" and ¼" camera screws.

Bogen Photo Corp., (201) 818-9500, fax (201) 818-9177, e-mail: info@bogenphoto.com, website: www.bogenphoto.com

New DV Camcorder

Panasonic Broadcast & Digital Systems Company announces its new ultra-compact AG-EZ30U 3-CCD digital

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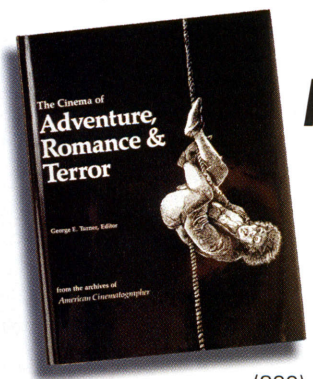
Among films featured: *The Hunchback of Notre Dame, The Bat, Wings, Bulldog Drummond, All Quiet on the Western Front, Dracula, Frankenstein, Creation, Tarzan, The Monkey's Paw, The Most Dangerous Game, White Zombie, The Lost Patrol, Bad Lands, The Black Cat, Crime Without Passion, Flash Gordon, Gunga Din, Cat People, Laura, Out of the Past, Rope, D.O.A., Night of the Hunter.*



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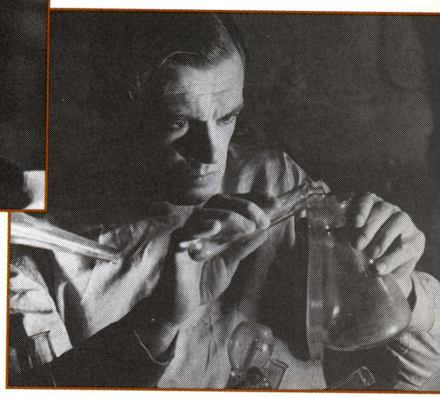

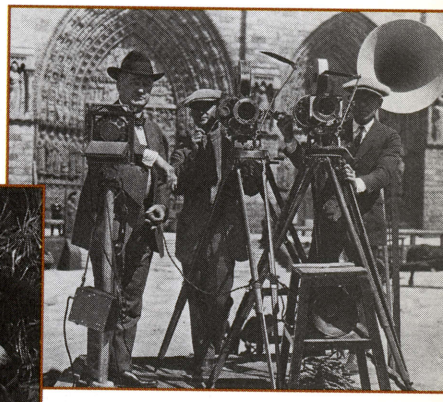

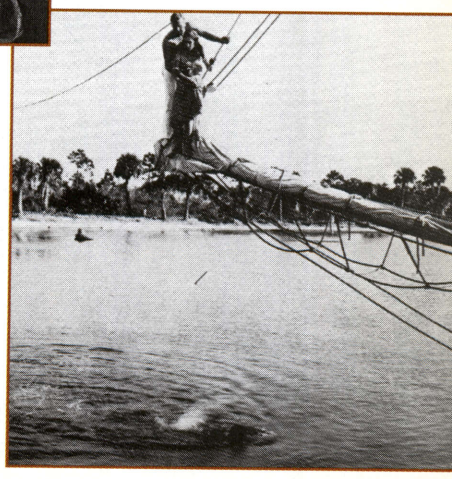

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The camcorder features three ⅓", 270,000-pixel IT CCDs to produce 460 illumination of two lux (with digital gain-

up), and draws only nine watts of power. Each pixel has a large light-collecting area, which gives this camcorder its high S/N ratio, high sensitivity and wide dynamic range. The AG-EZ30U will record up to 60 minutes of digital component video and digital audio on a ¼" cassette. The miniature DV cassettes can be played back in all Panasonic DVCPRO studio VTRs (using an optional adapter), enhancing the use of DV cassettes.

The camcorder's four-pin IEEE 1394 Firewire interface allows digital-to-digital signal transmission or reception when connected to another DV camcorder or an IEEE 1394-equipped personal computer. The AG-EZ30U is equipped with a 12x optical, 30x digital and 120x super digital zoom lens.

For professional application, the camcorder offers a built-in SMPTE time-code generator, and users can manually control the camcorder's focus, shutter speeds, gain and iris. Another professional function, a zebra-level indicator, located in the viewfinder, allows users to determine the optimum image exposure.

Equipped with both an adjustable, 2.5", 180,000-pixel color LCD monitor and a 0.2" color viewfinder, the camcorder offers viewing flexibility regardless of shooting conditions. The AG-EZ30U comes preset with a combination of iris size and shutter speed for a variety of subjects and shooting conditions. Shooters can select from five program AE modes: sports, portrait, spotlight, surf, snow and low light. The unit's six built-in digital effects include the following: wipe, mix, strobe, gain-up, black/white and still. The AG-EZ30U features four channels of 16-bit digital PCM sound, is equipped with a built-in stereo microphone, and offers an external mike input and IR remote control for key function.

Panasonic, (800) 528-8601, website: www.panasonic.com/presentations.

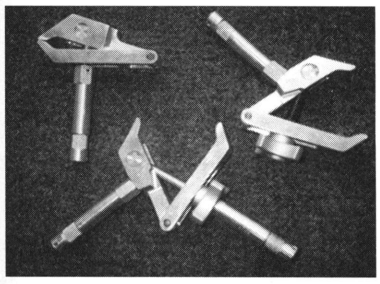
Effects Sourcebook

The Little Black Book of Visual Effects is a comprehensive directory for visual effects production. Using their combined production and facility experience in visual effects, editors Bernice Kenton-Briggs, Michele Linse-Jeffers, Janette Shew and Tamara Watts-Kent have compiled an array of visual effects companies and personnel. The book's categories are divided into various areas of specialties — miniatures, mechanical and physical effects — and runs through all phases of stage and digital production. Each listing includes special skills and equipment which the company offers.

Pennylane Animation, Inc., (213) 860-6652, fax (818) 363-2449.

New Clamp

Doggicam has released an lightweight, compact, strong clamp for use with its Doggimount system. The Rhino clamp is designed to securely grab objects ranging from ⅜" to 2¾" and provide a standard ⅝" baby pin for mounting or support. The compact



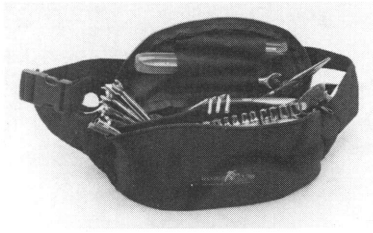
design of the Rhino clamp requires less than 1' clearance to secure the device.

The Rhino clamp is available in three configurations: a single action version uses the baby pin as the tightening mechanism of the clamp and provides the most compact version, enabling access to difficult spots; a hand-action clamp with a fixed baby pin provides secure but still compact clamping action; and a third version combines the two other variations into a dual-pin clamp which provides a quick solution to many rigging problems on stage or location. Thermal-plastic rubber "boots" snap over the ends of the jaws of the clamps to give full protection to objects being clamped.

Doggicam, (818) 845-8470, fax (818) 845-8477.

New Tool Pack

In addressing a need for a smaller version of their Toolpak, Paktek has taken the design of an ordinary fanny pack and developed the Fannypak, which is tailored to complement specific jobs



requiring high mobility. The Fannypak features a fold-out tool panel and three internal compartments, all designed to hold a variety of tools in a way that's convenient and organized. The Fannypak is constructed of 1,000-denier Cordura, a material strong enough to withstand daily wear-and-tear as well as being soft enough to protect the implements and their surroundings.

Paktek, (800) 258-8458.

Viewfinder Upgrade

OpTex recently announced the immediate availability of an attachment for the Kish Optics Ultimate Director's Viewfinder. This attachment allows the use of B4 mount EC prime or lightweight zoom lenses so that scenes can be

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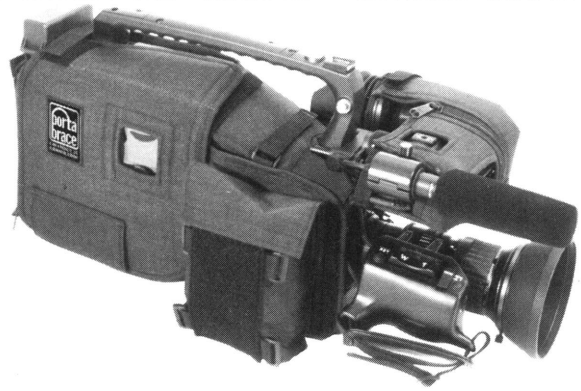

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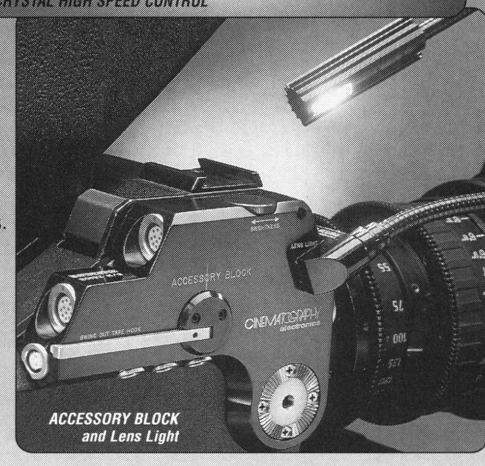

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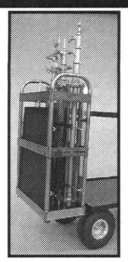
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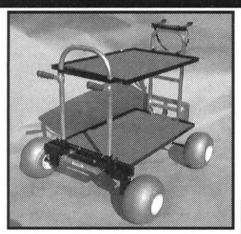
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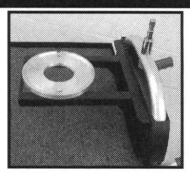
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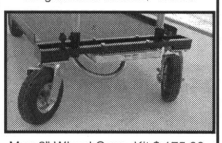
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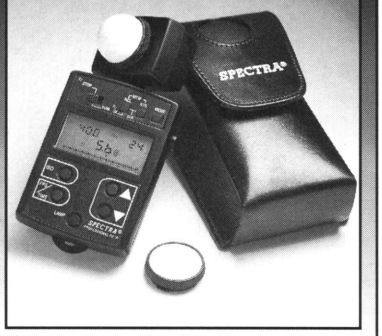

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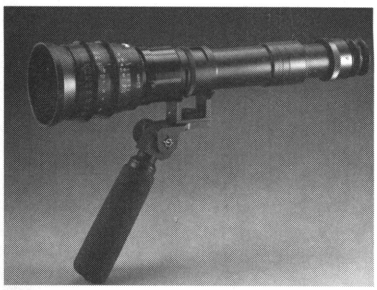

viewed in a similar way to those of motion picture lenses. Interchangeable, engraved ground-glass screens are available for shooting in the 4:3 and 16:9 formats.

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Remote Head Add-On

Egripment announces its new RollAxis, an add-on which complements all existing Egripment HotShots and HotHeads and provides the operator with more options and the ability to give "Dutch" look to their shots.

The RollAxis offers a complete 360-degree roll movement for cameras up to a maximum weight of 15kg/33.5 lbs. It works via the existing Slipring system of the HotHead or HotShot, and is easy to install or remove (both mechanically and electronically) with no modifications being required. A limit switch to prevent the twisting of cables. It also includes a special joystick with thumb control that controls the pan-and-tilt joystick.

The apparatus' control unit offers a variable speed control that has a preset for the maximum speed, a reverse switch to change the control of the direction of the roll movement, and an Electronic Damping Control for smooth starts and stops. An Automatic Return Switch can automatically return the RollAxis back to the zero-degree roll position; the speed of this movement is variable and can also be preprogrammed. The RollAxis comes as a with a support bracket for either the HotShot or HotHead, an adjustable camera platform, cable system, control unit, joystick and flight case.

Egripment Inc., (818) 787-4259, fax (818) 787-6195, e-mail: egripment@egripment.com.

Kodak-Panavision Digital Preview System

Developed in conjunction with Panavision, Kodak's new Digital Previewing System allows cinematographers to capture digitized still pictures on the set, alter the image files using a wide range of parameters emulating real-world options, and make on-the-spot high-quality prints of the images. The unit will be available for rental through Panavision.

The Preview System consists of a high-end Kodak DCS 520 digital camera adapted for Panavision Primo lenses, a 166 MHz Pentium MMX laptop computer, a 17" CRT monitor and a high-resolution Kodak DS 8650 thermal printer. Images can be stored on PCMCIA cards for easy transport, or translated into Kodak's Flashpix format for transmission over the Internet. The printer produces high-quality 9" x 14" prints in less than two minutes.

Many additional features will be offered with the system. For instance, a spot-meter function provides instantaneous exposure readings by simply moving the cursor arrow over the screen image. With the click-balance feature, users can point to and click on an area, designating that color as the equivalent of 18 percent gray, and the software will balance the rest of the image around that midpoint.

Another feature is the Quantized Color Zone System. The color in an image is divided into one-stop increments, and assigned an indicator color: blues and black indicate shadow areas, and reds and whites are highlights; the blackest blacks mean there is no more shadow detail in that area of the image; the white areas, when actually exposed, will "blow out" or "clip." Although the digital DCS 250 camera and monitor can't duplicate the wide latitude of film, the software is designed to give accurate representations of how various emulsions will react. Cinematographers can use this information to fine-tune exposures and lighting for such purposes as rendering the full range of scenes from highlights

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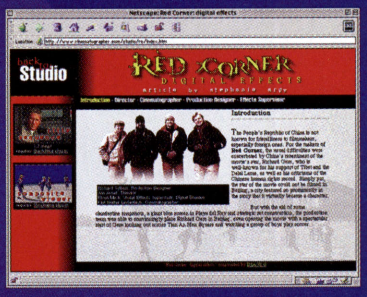
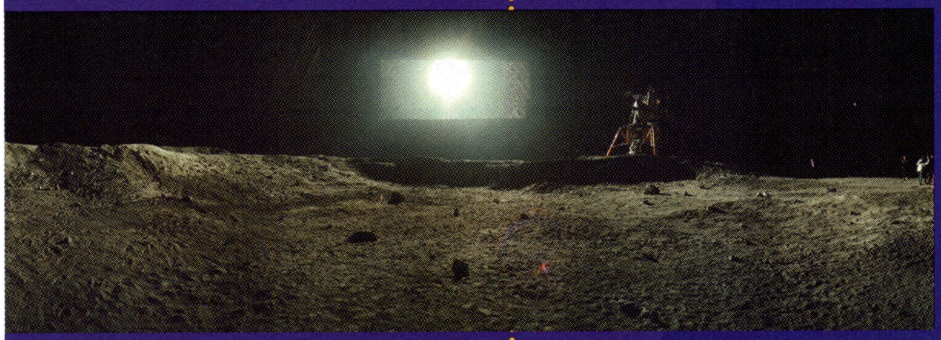
NEW FEATURES:

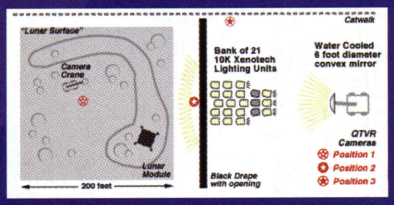
E-mail cinematographer John Bailey, ASC, questions about his collaboration with Michael Apted on the television series, *Always Outnumbered*.



Set foot on the moon as you explore 360° panoramic QTVR movies of the "lunar surface" used in HBO's ambitious series *From the Earth to the Moon.* Interviews with cinematographer Gale Tattersall and chief lighting technician Jim Dillinger, along with overhead diagrams, give you the best perspective on Gale Tattersall's unique lighting solution.



A virtual China? Find out how Digital Domain created Tian An Men Square from 35mm snapshots for the opening sequence of *Red Corner.* Interviews with cinematographer Karl Walter Lindenlaub, director Jon Avnet, production designer Richard Sylbert and visual effects supervisor Kevin Mack, combined with our special composite viewer, reveal how the shot was conceived and composited, layer by layer — and a Quicktime clip of the finished film shows the ultimate results.



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The system is designed to imitate the manner in which different Kodak motion picture stocks will record images in a particular setting at different exposure ratings and printer lights (specific to the various labs), and with filtration packages or custom lab processes. Imagery can be manipulated in a variety of means calibrated to emulate real-world conditions.

Panavision will provide a lens-mount adapter so cinematographers can experiment with Panavision lenses of various focal lengths, or capture images through the actual taking lens, maintaining more accurate colorimetry in the image.

For more information, contact your local Panavision representative.

New Shotgun Microphone

Audio Intervisual Design introduces the new Sanken CS-3 Short Shotgun microphone.

The mike features a low-frequency roll-off switch. With this function, the CS-3 operates as both a traditional shotgun microphone, or with increased high-directivity in the low frequency ranges. The CS-3 maintains sharp directivity for the targeted sound sources by utilizing the combination of a second gradient microphone and a line microphone. Measuring only 10.6 inches (27cm) in length, the CS-3 can pick up chosen sound sources even in noisy ambient environments or long reverberation spaces.

The CS-3's performance is derived from an array of three newly designed directional condenser elements, based on the five-capsule technology of the CSS-5 Shotgun Stereo microphone. Developed in conjunction with NHK, the PPS (Poly-Phenylene Sulfide) diaphragms provide improved response and optimum humidity/temperature stability. The mike's 19mm diameter accommodates all standard accessories, including grips, blimps and windscreens.

Audio Intervisual Design, (213) 845-1155, fax (213) 845-1170. ■

Points East

MoMA Celebrates Super 8

by Eric Rudolph

The first films made by many modern moviemakers were shot in 8mm, either with the family movie camera or film-school equipment. Understandably, most of these self-styled auteurs couldn't wait to abandon the format, with its inherent limitations, and move on to 16mm and 35mm. However, many serious filmmakers never really wanted to put away their beloved 8mm cameras, and have used Regular 8 and Super 8 stocks to create some spectacularly innovative and influential works.

The creative output of more than 100 narrow-gauge filmmakers has been lovingly collected in *Big as Life: An American History of 8mm Films,* a program which runs until December 1999 at New York City's prestigious Museum of Modern Art (MoMA). The program was created in collaboration with the San Francisco Cinematheque, a longtime booster of 8mm filmmaking.

"A great deal of innovation that occurs in 8mm filmmaking goes on to influence more mainstream films," explains Jytte Jensen, associate curator for MoMA's Film and Video department. "Everything that can be done in film has been done, often first, in the narrow-gauge world." Techniques popular in commercial features, music videos and television commercials which either originated, or have been most fully explored, in the 8mm world include the deliberate display of splices and flash frames, disconnection of sound and image, and strongly jarring, rhythmic editing.

Not only have these techniques permeated the professional world, but Super 8 footage has surfaced with increasing frequency in commercial films. Prominent filmmakers who have recently used the Super 8 format in major features and documentaries include Oliver Stone, Gregory Nava, Tim Robbins, Jim Jarmusch and Spike Lee.

The MoMA series, however, is not a nostalgic look at the influence of past narrow-gauge pioneers. *The Big as Life* curators report that 8mm filmmaking is alive and well, and that its practitioners are producing some of today's most vibrant work.

This "insignificant, despised medium," in the words of influential 8mm filmmaker Mike Kuchar, also seems to be on the brink of receiving mass approval from young adults, a population whose DIY (Do It Yourself) penchant for trendsetting and tastemaking endows them with the power to create a narrow-gauge boom.

"*Big as Life* is not just about a bygone moment in the sun — students and young people throughout the world are flocking to Super 8 and related formats," points out Steve Anker, co-organizer of *Big as Life*, director of the San Francisco Cinematheque and a film professor at the San Francisco Art Institute. "Many of the leading lights of today's narrow-gauge filmmaking world, such as Baltimore's Martha Colburn, New York's Anie Stanley and three San Franciscans known as 'The Silt Collective,' are in their twenties or early thirties. Interestingly enough, a group of young film students in Brussels who were recently offered the latest digital video cameras actually protested — they preferred to work with Super 8."

A good deal of 8mm's allure — lies in the equipment's microscopic weight and manageable size. "These small cameras become like an extension of the filmmaker's bodies," says Jensen.

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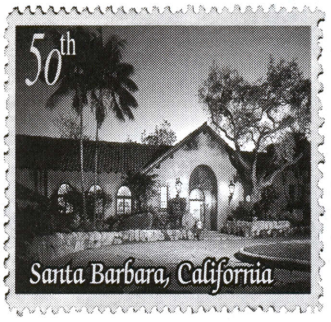

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"Many filmmakers use narrow-gauge means to explore personal relationships and also to look inward, using the intimacy to abstractly tap into psychological phenomena."

A great deal of the films in the MoMA retrospective fall into the avant-garde or experimental category, and according to Jensen provide a "devastating and eloquent critique of mainstream ideology." However, there are also documentaries, comedies, melodramas and other, more conventional genres.

One noted 8mm filmmaker is iconoclast Saul Levine, who has more than 40 films (made between 1965 and 1997) in *The Big as Life* program. "Levine makes movies that are unpredictable, visceral, immediate and mind-expanding," opined critic J. Hoberman in a *Village Voice* review of Levine's recent one-man MoMA presentation.

At his MoMA screening, the wiry, long-haired Levine sat at front-row center in the theater, which — thanks to the limited throw of the 8mm projection used in *The Big as Life* unspoolings — is quite intimate. And with the projectors just behind the last row of seats — beaming out camera originals of some of Levine's work — the splices ran noisily through the gate, grittily (and purposefully, according to Jensen) accenting the frenetic cutting of the filmmaker's otherwise silent, visually stunning films.

Levine's jittery, kinetic and often densely-layered work is precisely planned. "When Saul runs a roll of film through his camera two and three times, it is not haphazard," details Jensen. "He knows exactly where on the roll each previous image is, and creates his overlays with great precision, because that is the only way it can work artistically."

Some of the diverse filmmakers represented in the MoMA exhibition include NYC-locals Richard Kern and Tessa Hughes-Freeland, as well as experimental filmmaking icons Bruce Connor and Stan Brakhage.

Working in the small gauge is not always an easy path to follow, of course. Reliable cameras, projectors and labs are hard to locate, and the selection of film stocks is shrinking. The single-system sound-on-film Super 8 format, which flourished briefly with home-movie buffs and serious filmmakers until the early Eighties, has been discontinued. And much to the narrow-gauge community's chagrin, Regular 8mm film (25' spools of 16mm stock which took two sets of 8mm images and were split apart after processing) was abandoned in the early Nineties. This 8mm incarnation is mourned because it was the small-gauge purist's format of choice. In *Big as Life*'s eponymous 120-page catalog, Anker attests that Super 8 does offer a much greater image area, thanks to smaller sprocket holes. But devotees of Regular 8mm complain that the plastic Super 8 cartridge cannot hold the film as steadily in the gate and makes dissolves and superimpositions impossible in most cameras.

However, Super 8 recently received a sizable professional boost when the Burbank, California-based Super8 Sound began loading a variety of current professional color 35mm negative stocks into Kodak's familiar 50' Super 8 cartridges (see "Transforming Super 8" *AC* Oct. '96).

Super8 Sound also processes Super 8 film (black-and-white reversal, color reversal, and negative), transfers it to video with a dedicated Rank Cinetel telecine and a da Vinci color corrector, and rents and sells Beaulieu crystal-sync Super 8 cameras. A wide variety of lenses are also available, as are Super 8 cameras set up in full production mode (complete with video assists).

Mainstream filmmakers most often use Super 8 for home-movie scenes, flashbacks and other special sequences. As a result, says Jensen, "many have fallen in love with Super 8, thrilled by the freedom it affords. And when they see how wonderful Super 8 looks blown up to 35mm, they embrace it as an aesthetic. By playing around with 8mm, professional filmmakers can experience a whole different kind of freedom." ■

Books in Review

by George Turner

An Autobiography of British Cinema
by Brian McFarlane
Methuen/Trafalgar Square,
672 pps., paper, $24.95

This is the biggest, fattest paperback movie book that has arrived in a long time. Happily, it's also among the best, both in concept and result. The idea is to present an in-depth look at the life and times of the British film industry, as told by many of the filmmakers and actors who created it. What we have here is a massive collection of about 140 interviews with movie professionals who actually worked at Gainsborough, Ealing, Pinewood, Elstree, Denham, Pinewood, Welwyn, Twickenham and other studios at the heart of the business. This is fleshed out by some 50 biographical entries on important contributors to British cinema who were no longer living.

The Australian author admirably avoids critical opinion and concentrates on the facts, focusing on the period from 1930 to 1980. This half-century is marked by both the struggle to survive some of the hardest of times and the flowering of an occasional Golden Age. The entries are arranged alphabetically, beginning with composer John Addison and ending with cinematographer Freddie Young, BSC. Music men get short shrift after Addison, but there pieces on other cinematographers (including BSC fellows Guy Green, Freddie Francis, Ronald Neame, Walter Lassally, Ossie Morris and Nicolas Roeg) and most of the better-known directors. There are also profiles of some designers, screenwriters, film editors, producers and executives. Most of all, the reader will encounter a multitude of actors, living and dead, whose reminiscences invariably show a fine appreciation of the craftsmen with whom they worked. Character actors (e.g. Raymond Huntley, Herbert Lom, Dame Margaret Rutherford), receive the same attention accorded the more glamorous stars.

McFarlane correctly notes that "discussion about [the British cinema] has suffered from that reckless auteurism which picks out alpine heights (Powell, Lean, Reed) and, in doing so, obscures a great deal of attractive and appealing work in the foothills, let alone on the plains." By setting off on an non-auteurist path, this author succeeds where many similar attempts have failed, providing some real insight into British filmmaking. Bravo, McFarlane! And please give us more.

Easy Riders, Raging Bulls
by Peter Biskind
Simon and Schuster, 506 pps., hardback, $25

Nearly everybody involved in the movie business has already read this hefty tome about Hollywood in the Seventies. Subtitled "How the Sex-Drugs-and-Rock 'n' Roll Generation Saved Hollywood," it takes an unblinking look at a decade in which great reputations were made, often through the efforts of the uncredited, while the old studio system withered.

Legions of famous executives, producers, directors, writers and actors stumble, stomp or run roughshod through the story: Warren Beatty, Bob Rafelson, Dennis Hopper, Peter Fonda, Lou Wasserman, Francis Ford Coppola, Roman Polanski, Robert Evans, Robert Towne, William Friedkin, Martin Scorsese, Paul Schrader, Steven Spielberg, George Lucas and a multitude of others. Most of them take their lumps as money, sex, booze, drugs and scandals — essential elements of the so-called counterculture movement — erode lives and careers. The egotistical cruelty and ruthlessness

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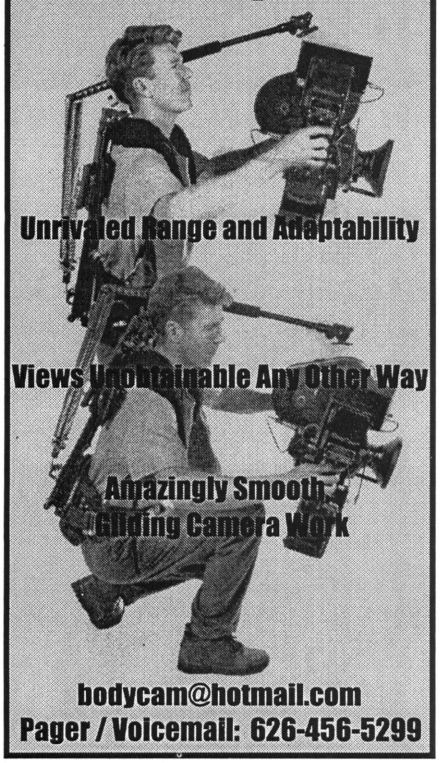

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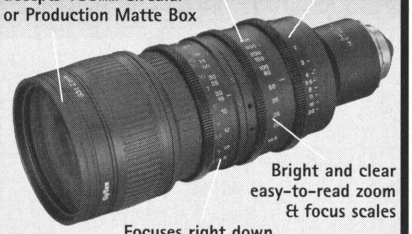

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that reportedly characterized many of the key people of the movement seems incredible.

Unlike many works of it kind, Biskind's opus has the ring of veracity. That the tale is told largely in the words of the participants rather than by the usual cynical lone observer lends it credence. These guys really blister each other with old-fashioned invective. However, one must allow for the possibility of self-serving or vengeful alterations of fact, which often occur during interviews on controversial matters.

Cinematic Hauntings

Edited by Gary J. and Susan Svehla
Midnight Marquee Press, paper, 320 pps., $20

Considering the rich literary heritage of ghost stories, it's surprising that there have been so few movies about hauntings. There *are* some good ones, though, and the 14 authors represented in this collection write knowledgeably about their personal favorites. Tastefully, they ignore the bloodbaths of recent vintage. Great ghost movies aren't "gross-out" sessions, relying instead on atmosphere and incident that can be amusing *(Topper, The Ghost Goes West)*, scary *(Curse of the Demon, The Haunting)*, romantic *(Portrait of Jennie, Somewhere in Time)*, or even a mix of these qualities *(The Uninvited)*.

Steven Vertlieb's poetic approach to Portrait of Jennie is one pleasant suprise. Gary Svehla's essay on *The Uninvited* is lovingly written, and he rightly proclaims the picture to be "a cornerstone by which all other ghost movies may be judged." Brian Senn does well by "Robert Wise's chilling masterpiece of understated terror," *The Haunting*. John Soister comes to the rescue of the oft-maligned *Supernatural*, and Gary Don Rhodes offers a long overdue re-evaluation of *Outward Bound*.

Other pictures that are given their due are *Blithe Spirit, Carnival of Souls, The Changeling, High Plains Drifter, The Innocents, The Lady in White, The Legend of Hell House, Nomads, Scrooge* and *The Shining*. The contributors all write with a charming enthusiasm about pictures that deserve their devotion, and their efforts add up to a very likable collection. ■

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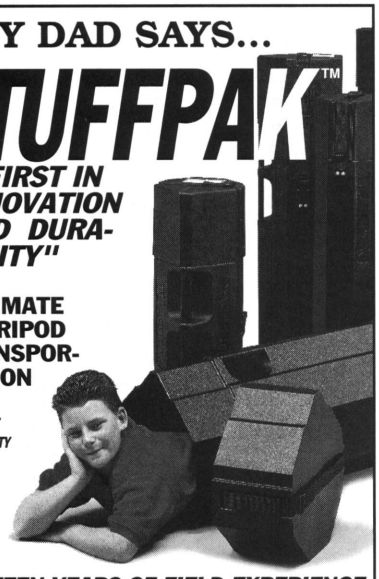

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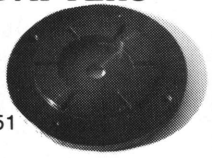

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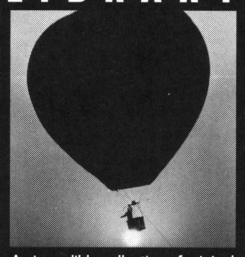

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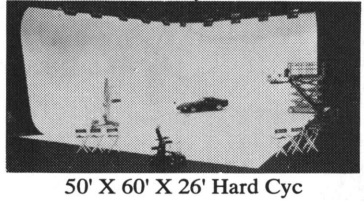

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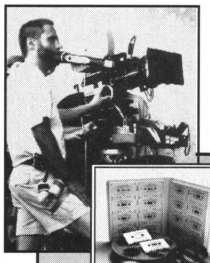

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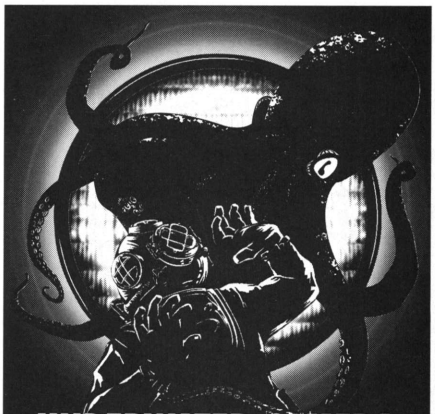

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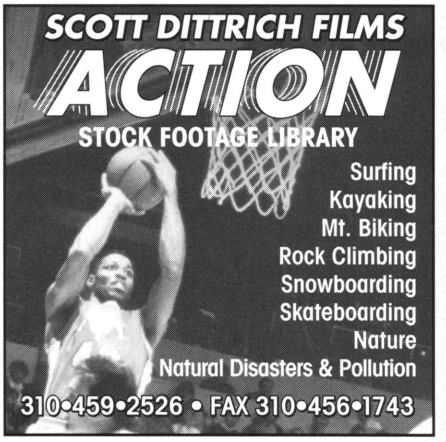

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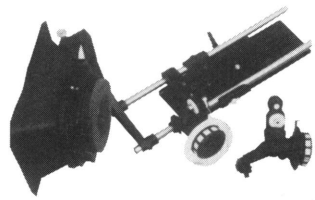
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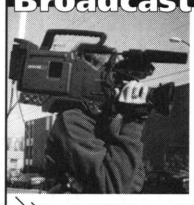
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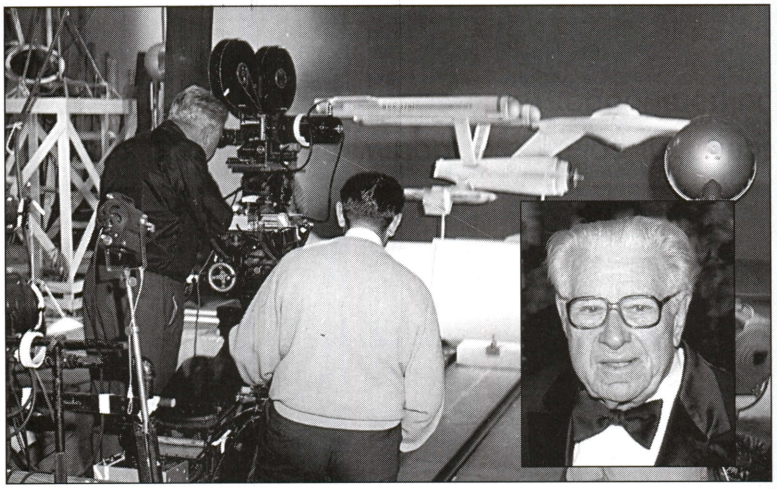

Working on the original *Star Trek* series in 1967, Dunn (behind the camera and in inset) lines up a shot on the *U.S.S. Enterprise* as it docks with the mysterious *Botany Bay* for the episode "Space Seed." The show later served as the basis for the 1982 feature *Star Trek II: The Wrath of Khan.*

Linwood G. Dunn, ASC, a master cinematographer in the realm of special visual effects, died on May 20 at the age of 94 at the Providence-St. Joseph Medical Center in Burbank. It would be difficult to overstate Dunn's influence on the art and technology of motion pictures during an active career which spanned 74 years.

Born in Brooklyn on December 27, 1904, and raised in Flatbush, Dunn worked as a largely self-trained dance-band musician during his high school years. In 1923 he also became a projectionist for the American Motion Picture Corp. in New York. His uncle was Spencer Gordon Bennet, who began as a serial stunt man for Pathé serials in New York and soon became a leading serial director. In 1925 Bennet hired Dunn as assistant cameraman on the celebrated film *The Green Archer.* The following year, when Pathé moved its serial unit to the Fine Arts Studio in Hollywood, Dunn came along. He was assistant cameraman on four more serials before becoming second cameraman on *Hawk of the Hills* in 1927. Working alongside the first cameraman, he photographed the negatives used for printing foreign versions. He also did aerial photography, split-screen shots, composites and lap-dissolves. Dunn was designated a first cameraman (director of photography) in 1929 on his 14th serial, *Queen of the Northwoods.*

After the serial wrapped, Pathé went into receivership, a corporate victim of the Great Depression. Demoting himself to operator, Dunn worked as a jazz musician between sporadic movie assignments. One day he received a call for a two-day job in the photographic effects department headed by Lloyd Knechtel, ASC at the new RKO Radio Studio. He stayed on, filming miniature shots and some of the earliest projection process scenes. He built a pioneering zoom lens which, to everyone's amazement, worked perfectly. Using a home-made optical printer, consisting of a Mitchell camera and a projector in a lathe bed, he made his first matte shots for *Ringside* (1929). Optical effects soon became his major interest, and he began working on ways to improve the art. He soon headed his own optical effects department and eventually became head of the photographic effects department.

His "temporary job" lasted until RKO ceased operations 28 years later. In the meantime he created effects for most of the company's pictures, including many classics: *Flying Down to Rio* and most of the subsequent Astaire and Rogers musicals, *King Kong, The Lost Squadron, Ace of Aces, The Son of Kong, She, The Last Days of Pompeii, Bringing Up Baby, Gunga Din, The Hunchback of Notre Dame, Citizen Kane, Cat People* and *The Thing.*

In 1942, the Eastman Kodak Company approached Dunn about a need in the U.S. Armed Forces Photographic Units for special effects optical printers. Printers at the studios were homemade rigs, but they had never been manufactured as a commercial product. The government commissioned Dunn to produce such a printer. With his longtime associate Cecil Love, Dunn designed the device, which was manufactured by the Acme Tool and Manufacturing Co. of Burbank. After the war, the equipment was made available to studios and independent effects labs.

In 1944, Dunn and Love received an Academy Technical Achievement Award for "the design and construction of the Acme-Dunn Optical Printer." Thirty-seven years later, the Academy upgraded the award to an Oscar for "basic achievements which have a definite influence upon the advancement of the industry." The Academy honored Dunn with a Special Academy Award for Outstanding Service and Dedication in 1979, and the Gordon E. Sawyer Award for Highest Technical Achievement in 1985. His activities with the Academy included a stints as a member of Board of Governors (1976-82), as chairman of the Cinematography Executive Committee and of the Special Effects Award Committee (1977-79) and as a member of the Scientific and Technical Awards Committee and Grants Committee.

When RKO ceased production in 1957, Dunn leased the special effects facilities, merging the operation with Film Effects of Hollywood, a facility he had founded in 1946. The company made increasingly sophisticated visual effects for such pictures as *West Side Story; It's a Mad, Mad, Mad, Mad World; A Place to Stand, My Fair Lady, The Great Race, Hawaii, The Bible, Darling Lili, Airport*

and *The Shape of Things to Come.* The company worked extensively in 70mm formats such as Todd-AO, Imax, Omnimax and Ultra-Panavision. In the television field, Film Effects' credits include *Star Trek, Project UFO, Wonder Woman* and the acclaimed ABC Special *Ray Bradbury's Infinite Horizons.*

Dunn was a founding member of the International Photographers Guild in 1928, and many years later helped to start up the Technology Council of the Motion Picture and Television Industry. He was president of the American Society of Cinematographers from 1977-79, served as treasurer for six years, and was a 25-year member of the Board of Governors. In 1990, the ASC presented him with the President's Award for his achievements in visual effects. Two years later he received the National Cinephile Society's Lifetime Achievement Award, which was presented by *King Kong* star Fay Wray. Dunn's other honors included the first honorary doctorate awarded in motion picture arts by the San Francisco Art Institute, the Golden Hugo statuette from the Chicago International Film Festival, the Herbert T. Kalmus Gold Medal Award of the SMPTE in 1971, a Special Citation from the SMPTE, recognition as a Life-Fellow of SMPTE, and an honorary membership in the Visual Effects Society (1998).

In 1983, Dunn conceived and co-authored the landmark book *The ASC Treasury of Visual Effects.* He sold Film Effects in 1985 and celebrated his retirement by working as hard as ever as an international production consultant, lecturer and inventor. He was still working on a laser-to-theater exhibition system during the last weeks of his life.

Survivors include his wife, Alice; four daughters, Nancy, Pamela, Gayle and Judy; and several grandchildren. ■

From the Clubhouse

ASC Holds Agents Night

An ASC dinner meeting on May 18 dubbed "The Biz of Show Biz," featured an inquiry and discussion into the issues facing cinematographers when they're embroiled in the age-old "art of the deal." Program chairman Robert Primes, ASC put the evening together and also moderated the panel consisting of agents Cecilia Banck (Smith, Gosnell, Nicholson & Associates), Barbara Halperin (The Gersh Agency), Paul Hook (ICM), Larry Mirisch (The Mirisch Agency), Robin Sheldon (Lyons/Sheldon Agency) and Spyros Skouras (The Skouras Agency), as well as Bruce Doering of the International Photographers Guild.

The evening's most important topic was the dilemma of directors of photographers who wish to be considered authors of their work, as opposed to simply workers-for-hire providing a service. Jim Glennon, ASC suggested that cinematographers author and copyright a written breakdown of how a movie would be lit and photographed, paving the way for directors of photography to be considered authors, collect royalites and so on.

Another point of concern was changing contracts so that cinematographers would receive payment for the traditionally "free-of-charge" week of postproduction work — one that entails working with digital opticals, doing a telecine for the video release and finessing the film's answer print. The climax of the evening's event was the formation of a special committee (comprising both agents and cinematographers) which will meet on a regular basis to deal with these continuing concerns.

"It was a warm and well-received program," comments ASC President Woody Omens. "Both the agents and the cinematographers thought it was excellent because of the honest exchange of heartfelt concerns. The perspectives on what the workplace is like were made clear from *both* points of view." ■

Russell Passes

On the morning of April 21, ASC associate member John Russell died at the age of 68. He was the inventor of the hard front for the Arriflex IIC camera, the first to put a BNCR lens mount on the Arriflex 35BL and mechanical engineer of the original Skycam.

Born in Bolivar, Missouri, Russell learned his skills in the United States Air Force as he maintained the many cameras they had to have on line each day. Among other tasks, his cameras were used to map nearly every inch of the USSR. Upon his honorable discharge, he moved on to Alan Gordon Enterprises where he built many custom cameras and camera mounts. He then worked at F & B Ceco, Birns and Sawyer and Panavision before starting his own business, JAR Enterprises, in 1975. Dedicated to the advancement of motion picture technology, he devised many devices including the Eyepiece Video Tap for Arriflex and Panaflex cameras; the first Director's Finder with video assist; the triple hard front for the Arriflex IIC, which allowed BNCR, PL, and Panavision lens mounts to be easily changed in the field; and many custom video taps and lens mounts. Russell also excelled in the area of Steadicam modifications and accessories. His many alterations to Arri cameras — the IIC, III, and 35BL — allowed operators to perform new types of shots.

Russell modified an Arri IIC to be driven by the inching knob with a Heden motor for fellow ASC associate Garret Brown as a test for the flying motorcycle sequences in *Return of the Jedi.* He was employed by Steven Spielberg as the chief camera technician on *Close Encounters of the Third Kind* and *1941.* He constructed more than a hundred Eyemo crash cameras and housings, and also built cameras for ASC members Haskell Wexler and John Hora.

Russell prided himself on his gruff exterior presence, but inside he had a heart of gold. The world will miss his genius; we who knew him will miss the man. — Dan Kneece, SOC

WRAP SHOT

While *The X-Files* is the current obsession of armchair conspiracy theorists everywhere, paranoia has long served as an intriguing cinematic subject. Few motion pictures have captured this gnawing sense of suspicion better than *The Parallax View,* a moody 1974 thriller directed by Alan J. Pakula and photographed with considerable panache by Gordon Willis, ASC.

The film follows a doggedly determined newspaper reporter, Joe Frady (Warren Beatty), who goes undercover, doubters be damned, to expose the insidious activities of the Parallax Corporation, a covert organization striving to engineer a seismic shift in the power structure of the United States through a series of ruthless political assassinations. Shot during the apex of the Watergate era, this existential tale ominously echoes the real-life murders of prominent U.S. leaders such as John and Robert Kennedy, Malcolm X and Martin Luther King. As Frady ruefully observes, "Every time you turned around, some nut was knockin' off one of the best men in the country."

Pakula and Willis explore this disconcerting theme in a series of spectacular setpieces: the slaying of a promising candidate (and eventually, the gunman) atop Seattle's towering Space Needle; the Parallax Corporation's attempt to mold Frady into a murderous pawn with a barrage of mindbending agitprop imagery (a famous sequence that has been pilfered countless times); and a carefully staged setup in which yet another pol is gunned down as he rides into a convention center on a golf cart, which then veers off its course and cuts a symbolic swath through an array of dinner tables decked out to resemble the American flag.

These events are artfully underscored by the typically masterful photography of Willis, who enhances the story's brooding ambience with his trademark use of inky darkness and silhouettes, as well as an unerring sense of anamorphic composition. Framed (quite literally) in the scene shown here, Frady, having just witnessed the convention-center killing, attempts to elude a Parallax functionary within the structure's array of catwalks. In a daring but downbeat climax characteristic of Seventies cinema, the reporter spies an open door and makes a dash for it, only to be obliterated by a blinding blast of light as an assassin steps through and unleashes a hail of bullets (which are heard but not seen). A cynical coda reveals that a specially appointed "investigative committee" has concluded that Frady, much like Lee Harvey Oswald, "acted alone" in the convention-center job. Yet again, the Parallax Corporation has managed to pin its sinister handiwork on a hapless patsy.

Pakula and Willis reteamed in 1976 on the equally absorbing *All the President's Men,* which inspired both *X-Files* creator Chris Carter and feature cinematographer Ward Russell. "*All the President's Men* is a very stylish-looking, mysterious and haunting, but it's not flashy or over-the-top," says Russell. "That film really influenced the direction of the visual images in our movie."

—Stephen Pizzello

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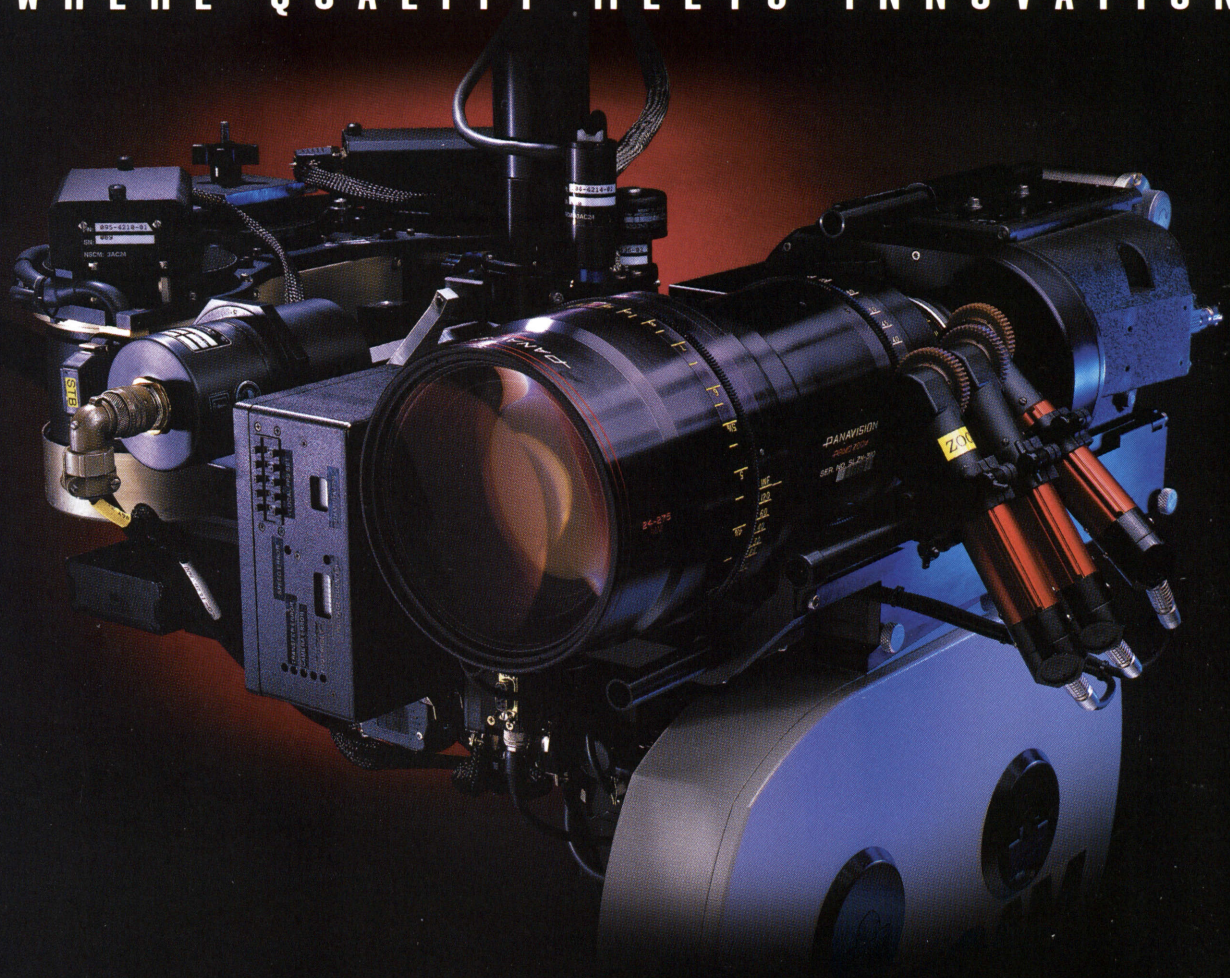

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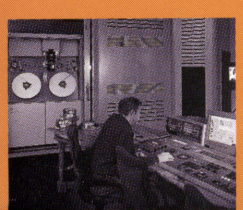

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